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**Data Report for the 1988 Ontario-New York-New England  
Seismic Refraction Experiment: Three-Component Profiles**

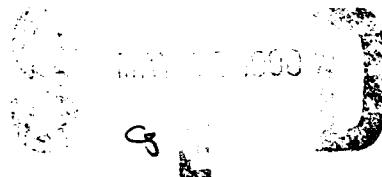
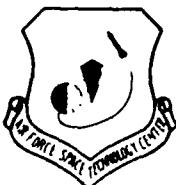
STEPHEN MANGINO  
JOHN CIPAR



23 February 1990



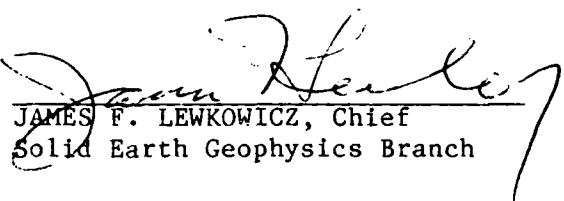
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EARTH SCIENCES DIVISION  
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PROJECT 2309

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JAMES F. LEWKOWICZ, Chief  
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During September 1988, the U.S. Geological Survey, the Geophysics Laboratory and the Geological Survey of Canada conducted a seismic refraction experiment across Ontario, New York and New England. This report is a compilation of the Geophysics Laboratory (GL) three component refraction and wide angle reflection data recorded during Deployments One, Two and Three across the Adirondack Mountains of upstate New York and the Green Mountains of Vermont and southern New Hampshire. The Appendix of this report includes data collected by Boston College and the Massachusetts Institute of Technology, which extends the coverage of GL deployment Two at both ends of the profile. These profiles were designed to constrain the three-dimensional velocity structure and bulk composition of the Earth's crust and upper mantle across the northern Appalachian Mountains and western Grenville province using three component seismic refraction data.					
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## PREFACE

We would like to extend our appreciation to James Leutgert and Edward Criley of the US Geological Survey for their cooperation during all stages of this experiment, as well as Gene Taylor. We also like to thank Al Leverette and Kent Anderson of the Air Force Weapons Laboratory for their technical expertise and dedication in deploying so many stations in difficult terrain, and James Battis of the Geophysics Laboratory (GL) for modifying the software when necessary to decode DCS-302 data. We also thank: Katharine Kadinsky-Cade, Janet Johnston, Sgt. Joseph Craig, Lt. Loyd Rainey, Charles Taylor, Henry Ossing and Christopher Botka of GL; the US National Forest Service; Terry Perkins of Stillwater Reservoir; Clarence Foster of Brandith Larch; Mark Chellis of Whitney Lumber Industries; Lawrence Blacklock; Philip Capone of New York State Department of Environmental Conservation; Boise-Cascade Industries; Michael Schrotz of the Green Mountain National Forest Service; and Esra Brooks for assistance in the field. This research was supported by the Air Force Office of Scientific Research under Geophysics Laboratory Task 2309G2, Crustal Motion Studies.

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## 1. INTRODUCTION

During September 1988, the U.S. Geological Survey (USGS), the Geophysics Laboratory (GL) and the Geological Survey of Canada (GSC), conducted a seismic refraction - wide angle reflection survey across New England, upstate New York and western Ontario. The objective was to determine geologic structure and wave propagation characteristics across the northern Appalachian Mountains and western Grenville province. Shown in Figure 1 is a map of the study area and location of the survey lines. The longest line extends roughly east-west for 640 km beginning in Waterville, Maine, across New Hampshire, Vermont, upstate New York, and ending in Mammora, Ontario. This line was instrumented by the USGS and the GSC using FM recorders and digital vertical component seismograph stations. Information concerning this data can be obtained in Leutgert et al, (*in preparation*).

This report is a compilation of the Geophysics Laboratory data collected during deployments One, Two, and Three (denoted by solid lines in Figure 1), across the Adirondack Mountains in upstate New York and the Green Mountains of Vermont and southern New Hampshire. These lines were instrumented with three component digital seismograph stations. Although not shown, several universities and one private organization conducted 'add-on' experiments to the survey. They include: SUNY Binghamton, Boston College, Lamont Doherty Geological Observatory, Yale University, Rondout Associates, and the Massachusetts Institute of Technology (MIT). The Appendix of this report describes the data collected by Boston College and MIT, which extended the length of GL Deployment Two at both ends. All USGS, GL and GSC data are archived at the National Geophysical Data Center in Boulder, Colorado, and tapes are available from:

U.S. Department of Commerce  
National Oceanic and Atmospheric Administration  
325 Broadway  
Boulder, CO 80303

Data tapes are written in SEGY-LDS version 2.0 format (Spencer et al, 1989) with several modifications to accommodate GL three-component data that are documented in this report. Table 4 gives an example a shot gather header and a trace header within a typical shot gather data file. Interpretations of these

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seismograms will be published separately. The Geophysics Laboratory data are also available from:

Earth Sciences Division  
Geophysics Laboratory /LWH  
Hanscom AFB, MA 01731

## 2. TECTONIC SETTING AND GEOLOGY

The tectonic evolution of the Appalachian Orogen extends from the early Paleozoic through the Mesozoic Eras. As described by Bird and Dewey [1970], the morphological and structural characteristics of the North American continent were formed primarily during the closing of the proto-Atlantic Ocean from the early-mid Ordovician through the Permian period. This convergence between the American and African Plates produced three major accretionary events that coincide in time with the Taconian, Acadian and Alleganian orogenies. Collectively, each orogeny is considered a separate pulse of a single long term collision that is generally referred to as the Appalachian Orogeny. The theory that the Appalachian Orogen consists of several microplates accreted during this time period is the focus of current debate in the literature (Hatch, 1982; Boudette, 1982; Zen, 1983; Zen, 1989). During the Mesozoic the Appalachians underwent crustal extension resulting in the opening of the North Atlantic Ocean and subsequent creation of a passive margin which remains today.

Figure 1 shows a map of the location of survey lines. In Maine, the profile samples three terranes known as the Gander, Dunnage and Piedmont defined by Williams and Hatcher (1983). A description of the geology of these and adjacent terranes can be found in Moench and St. Julien (1989). Continuing west across New Hampshire and Vermont the profile samples the Mesozoic White Mountain Series, the Bronson Hill Anticlinorium, the Connecticut Valley Synclinorium, the Green Mountain Anticlinorium, and the Champlain River Valley. These regions are described in detail by Lyons and Bothner (1989). In New York State, the profile samples the Adirondack Plateau which is a roughly circular exposure of granulite facies and anorthosite in sharp contrast with the typical north-north east trending meta-sedimentary rocks and intrusive Mesozoic volcanics of the Appalachians to the east. For a detailed description of

Adirondack geology and the Grenville province of Ontario see Bohlen et al, (1989).

### 3. PREVIOUS GEOPHYSICAL ANALYSIS

Previous geophysical surveys are generally sparse across the entire study area, but within the last decade several major traverses north and east of this profile have contributed significantly to our understanding of the near surface and deeper continental crust. Across the entire study area, Taylor and Toksoz (1982) investigated surface wave and regional body wave propagation throughout the crust and upper-mantle. In upstate New York the seismic refraction results given in Katz (1955), body-wave modeling results given in Taylor and Toksoz (1979), and teleseismic P-waveform modeling results of Owens et al, (1987) show the crust and upper mantle velocity structure beneath the Adirondack Mountains. The Consortium for Continental Reflection Profiling (COCORP) 1980 surveys provide the best, albeit discontinuous, data for the easternmost Adirondack Massif, southern Vermont and southern New Hampshire (Brown et al, 1983; Ando et al, 1984; Klempner et al, 1985). In Maine and eastern Quebec the 1984 USGS - Canadian Department of Energy, Mines and Resources seismic survey provides detailed refraction data of the northeast Appalachians (Leutgert et al, 1987; Stewart et al, 1986). Mangino and Cipar (1988) studied the shear wave velocity structure in southwestern Maine. Analysis of seismic data collected in the Canadian Appalachians (St. Julien et al, 1983; Keen et al, 1986) and in the southern Appalachians (Cook et al, 1979) indicate thin-skinned tectonism is the principal mechanism of Appalachian orogenic deformation. Complementary studies by Simmons, (1964), Diment (1968), and Simpson et al, (1980) provide interpretations of gravity anomaly maps of the study area.

### 4. DESCRIPTION OF THE SURVEY

A total of 35 shots distributed among 20 shot points located in-line at 30-35 km intervals and off-line at larger offsets were fired during the survey. Shot points 21, 22, and 23 were located in southern Maine, New Hampshire and Vermont, respectively, to provide fan coverage. Shot point 20 was detonated in a water-filled quarry, otherwise all explosives were loaded into 8 inch diameter

drill holes cased to bedrock that varied in depth from 160 to 180 feet. The boreholes were filled with ammonium nitrate explosives that were detonated by electric caps, detonating cord and boosters. Shot point 24 near Lorraine, New York was abandoned after drilling into an unexpected natural gas reservoir and subsequent fire. Each shot was fired automatically and timed using WWVB and IRIG time codes by the USGS. Shot point locations and charge sizes are listed in Table 1.

Seismic data were collected in three separate deployments over three shooting nights. For GL Deployment One stations were installed in-line between Long Lake (SP-14) and Lorraine (SP-24) NY, at about 4 km spacing. Maintaining consistent in-line station spacing was difficult because of inaccessible Adirondack Park wilderness lands, and where there were 'roads', numerous deer made driving somewhat hazardous. Stations 1122-1124 were deployed by boat from the south shore of Still Water Reservoir. For GL Deployment Two, all stations were installed in-line at about 5 km spacing between Addison, VT (SP-10), and Warner, NH (SP-22). This line was augmented with 10 USGS stations deployed in the central third of the line. Boston College-MIT stations extended this profile at both ends during all shooting nights. For GL Deployment Three, stations were installed in-line from Port Henry NY, to Long Lake NY, at about 3 km spacing. This line is coincident with the USGS - CGS second deployment, and the earlier COCORP New York Line 7 reflection survey given in Ando et al, (1984). All station locations and elevations were digitized from USGS 1:24,000; 1:25,000; and 1:62,500 topographic maps. Several stations within each deployment were located at USGS bench marks. Locations are estimated to be accurate within 15 meters. Tables 3a, 3b, and 3c show seismogram constants, shot-station offsets, and coverage for each deployment. In addition to the GL data, the Appendix includes the data report and record sections of the Boston College - MIT Piggy-back Seismic Refraction Experiment.

## 5. INSTRUMENTATION

All GL seismograms were digitally recorded on cassette tape using automatic gain ranging Terra Technology DCS-302 seismographs. In standard configuration each DCS-302 records 3 channels of data at 100 samples/sec (sps) with a 5 pole 30-Hz Butterworth anti-aliasing filter. Some stations were configured to record at 200 sps with a 70-Hz filter. Each DCS-302 was connected to

either a Sprengnether Instruments S-6000 2-Hz triaxial seismometer, or three Hall Sears HS-10-1B 1-Hz seismometers. Horizontal seismometers were orientated to magnetic north using a standard Brunton compass with an estimated maximum error of  $\pm 2$  degrees. The HS-10-1B seismometers were installed on an aluminum baseplate that included machine drilled grooves to ensure sensor orthogonality. In this case the long axis of the baseplate was aligned to magnetic north. Physically, the recorder measures pendulum motion relative to the case, which has the opposite sense to the ground motion. Polarity of each seismometer is defined to be such that upward movement of the case gives a negative deflection. For the horizontal components, the upward direction is defined to be north and east. A calibration pulse through each seismometer was recorded on tape *in situ* during each deployment. Free period, damping and sensitivity values for each sensor are determined by least square error fitting to the theoretical system response and are tabulated for each deployment in Tables 3a-c, as well as in each seismogram header. Figure 2 shows a typical instrument response curve for an S-6000 as recorded through a DCS-302 with nominal unit gain.

Each DCS-302 was initially synchronized to a GOES master clock and deployed with an external programmable timer to initiate recording over the expected shot window. Each DCS-302 also recorded real-time IRIG time code from WWVB receivers installed in each unit. After each shooting window all tapes were changed and timers reset for the next window. After the last shot window in a given shooting night all DCS-302's were re-synchronized to the GOES master clock on cassette tape for internal clock drift measurement. Almost all data were corrected using WWVB time code, otherwise time corrections were obtained using GOES data assuming a linear drift rate. Some traces have no time correction due to instrument failure but are included for completeness. These are indicated in Tables 3a-c by 'none' under Time Correction. Figure 3 shows an example of a typical WWVB time code signal at the minute mark used for time corrections. Propagation differences between the GOES master clock signal and the WWVB time signal are unresolvable at 100 sps.

## 6. DATA REDUCTION

At the conclusion of the experiment all cassette tapes were returned to GL and uploaded to a VAX-8650. Figure 4 shows a schematic of the station setup and

data processing steps. Each 3-channel data file, approximately 14 minutes long, was then cut into 80 second traces with a minimum of 5 seconds of presignal noise. No reduction velocity windowing is used. For the 200 sps data a 40 second time window was used. Each trace was then grouped into a common shot gather and saved as single shot profiles. Data were then corrected in the trace header only for clock drift and seismometer constants. Polarity corrections were applied to the data where necessary to accommodate SEGY-LDS version 2.0 format prior to archiving on tape. Additional modifications to this format are discussed in Table 4.

## 7. RECORD SECTIONS

All record sections are indexed by deployment and shot point location. For example: SP1-14 indicates *Seismic Profile for Deployment 1 - Shot Point Location 14*. For each common shot gather shown in Illustrations 5-7, we plot all data as unfiltered trace-normalized vertical, north-south and east-west components, denoted as SPZ, SPN, or SPE, respectively. All data are plotted at a reduction velocity of either 6.0 or 6.5 km/s with the same trace normalized amplitude scale factor. About half of the shot gathers for Deployment One have offsets greater than 350 km and low signal to noise ratios and are not shown. For Deployment Two, the fan shot gathers are plotted by azimuth, and are labeled as such. For Deployment Three, SP3-17 was not large enough to be recorded at the GL stations. Individual traces within some shot gathers are muted due to recorder and/or seismometer malfunction.

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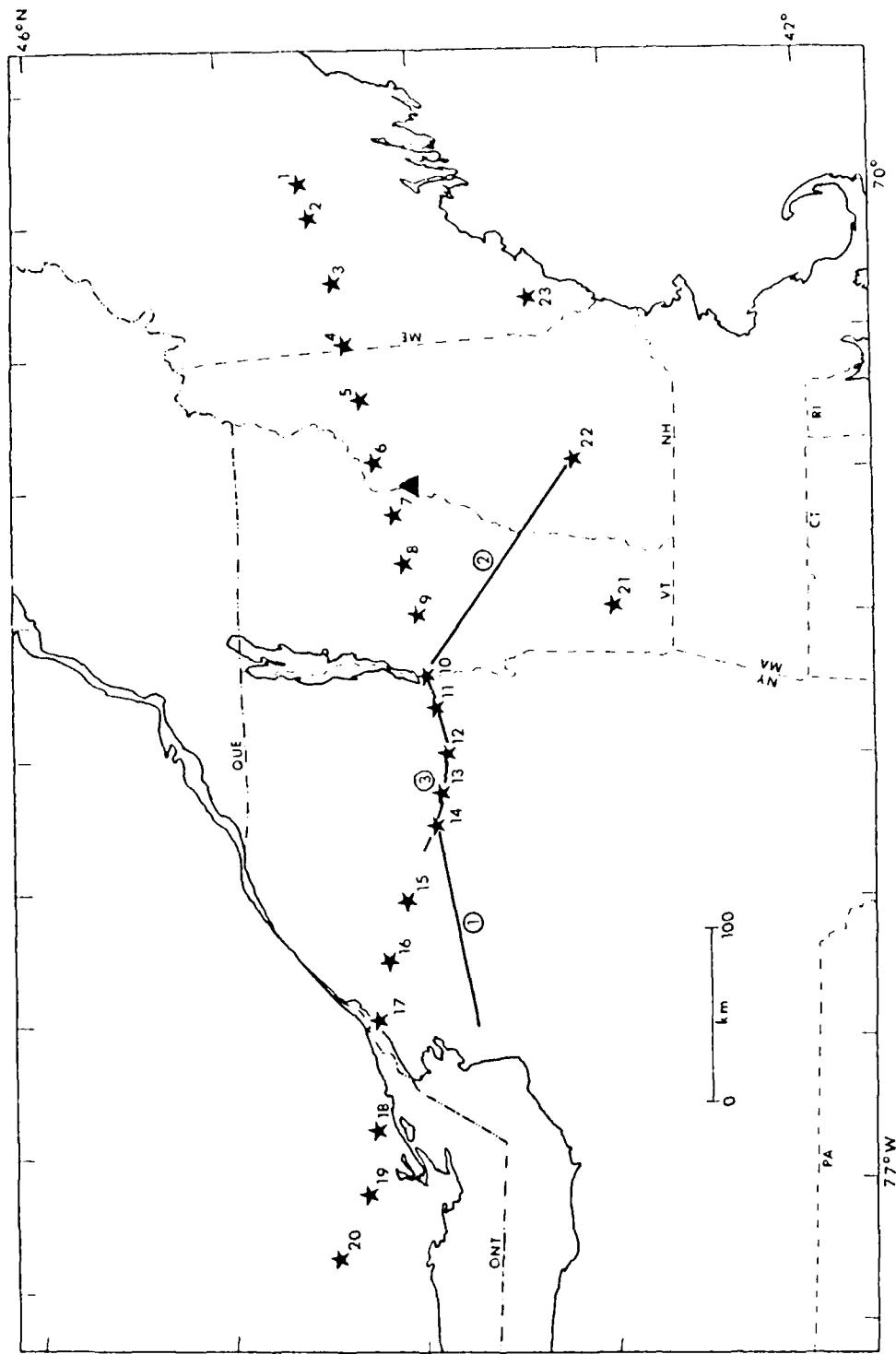


Figure 1. Map of the study area with shot point locations shown as stars, and GL Deployment Locations One, Two and Three shown as solid lines. The USGS and GSC stations were deployed in-line inbetween the shot points, and the solid triangle shows the location of the GL Small Aperture Array.

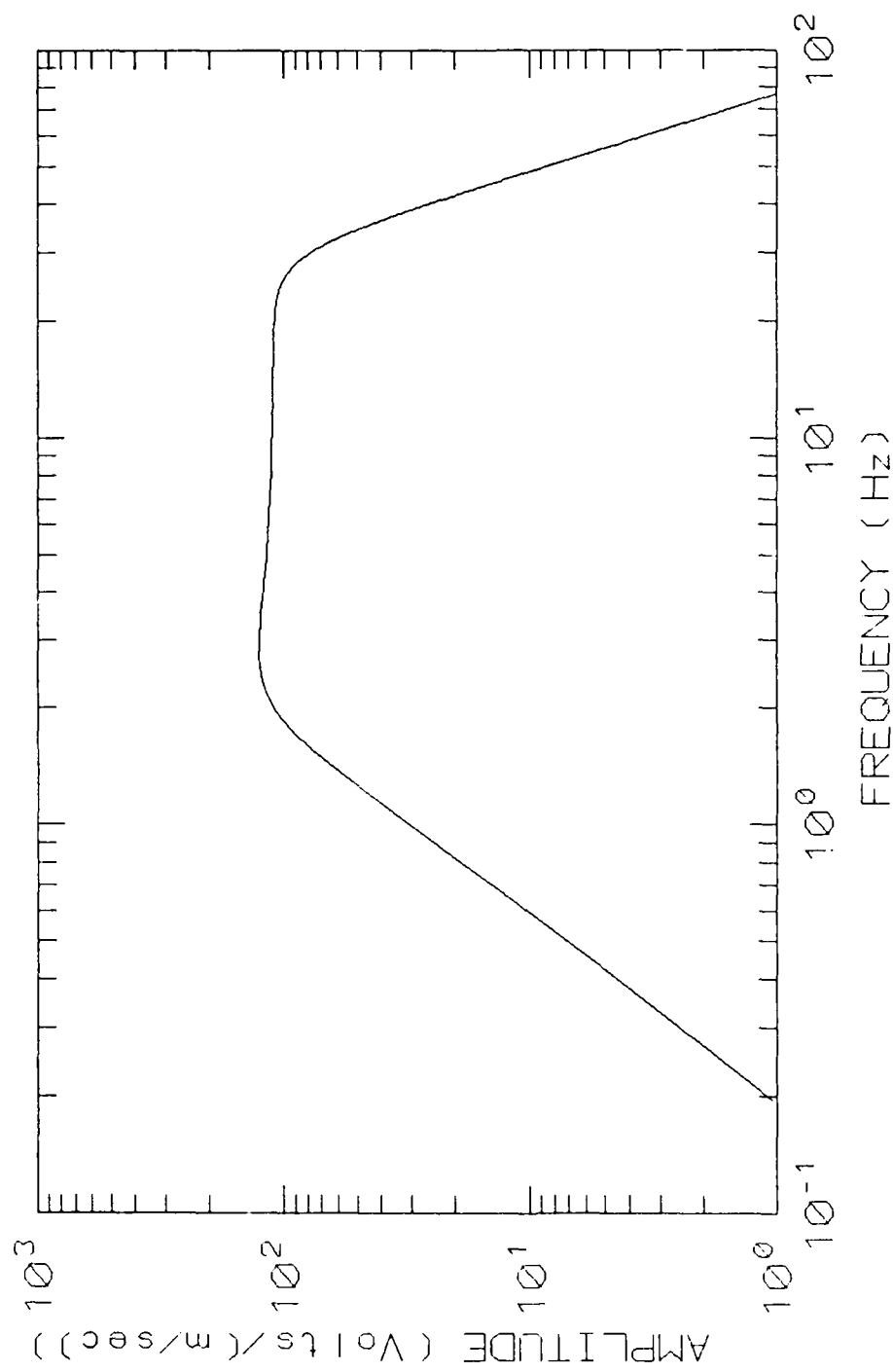


Figure 2. Typical GL S-6000 instrument response with nominal gain.

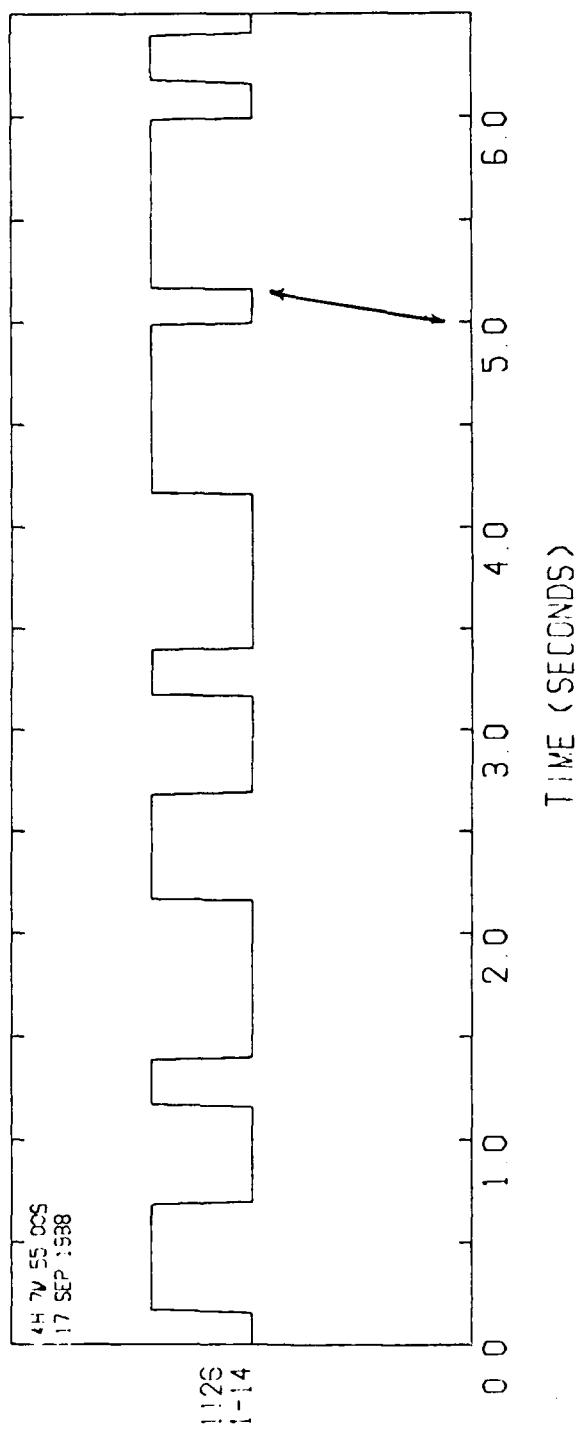


Figure 3. WWVB time code (top) and the corresponding DCS-302 internal time mark on the x-axis. The WWVB minute mark indicates the DCS-302's internal clock is slow. See Table 3a for the correction applied to this data.

Figure 4. Schematic representation of GL data processing.

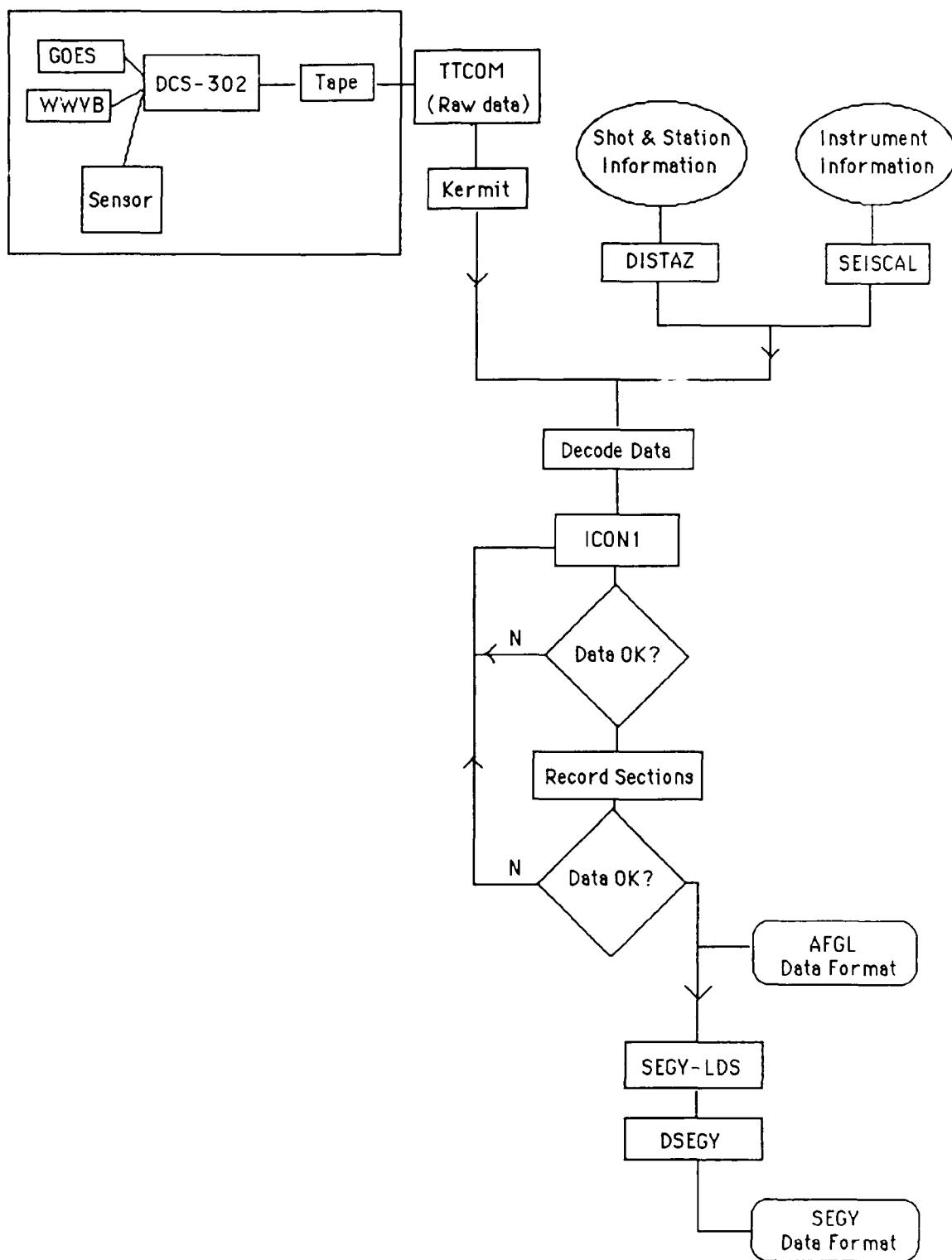
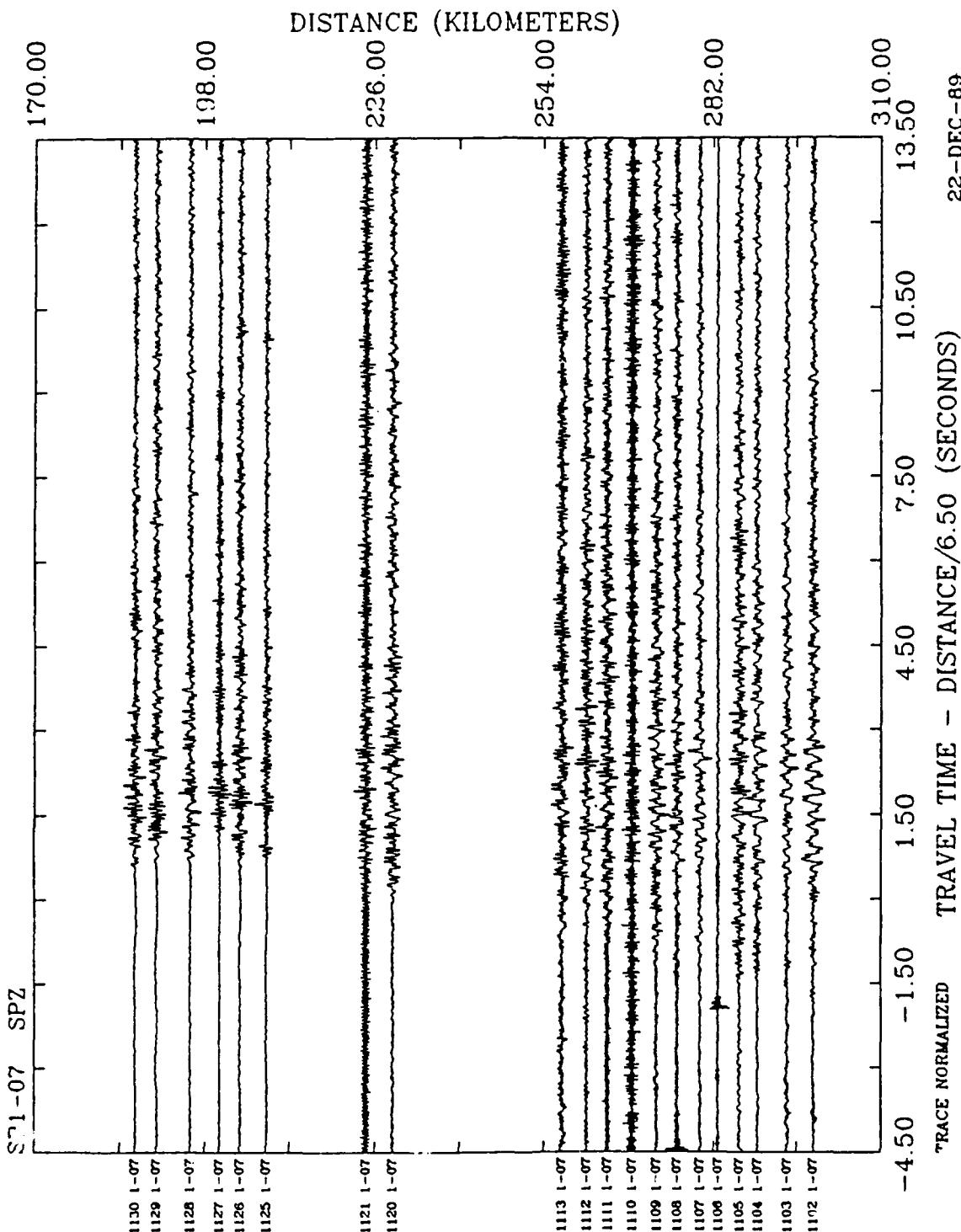
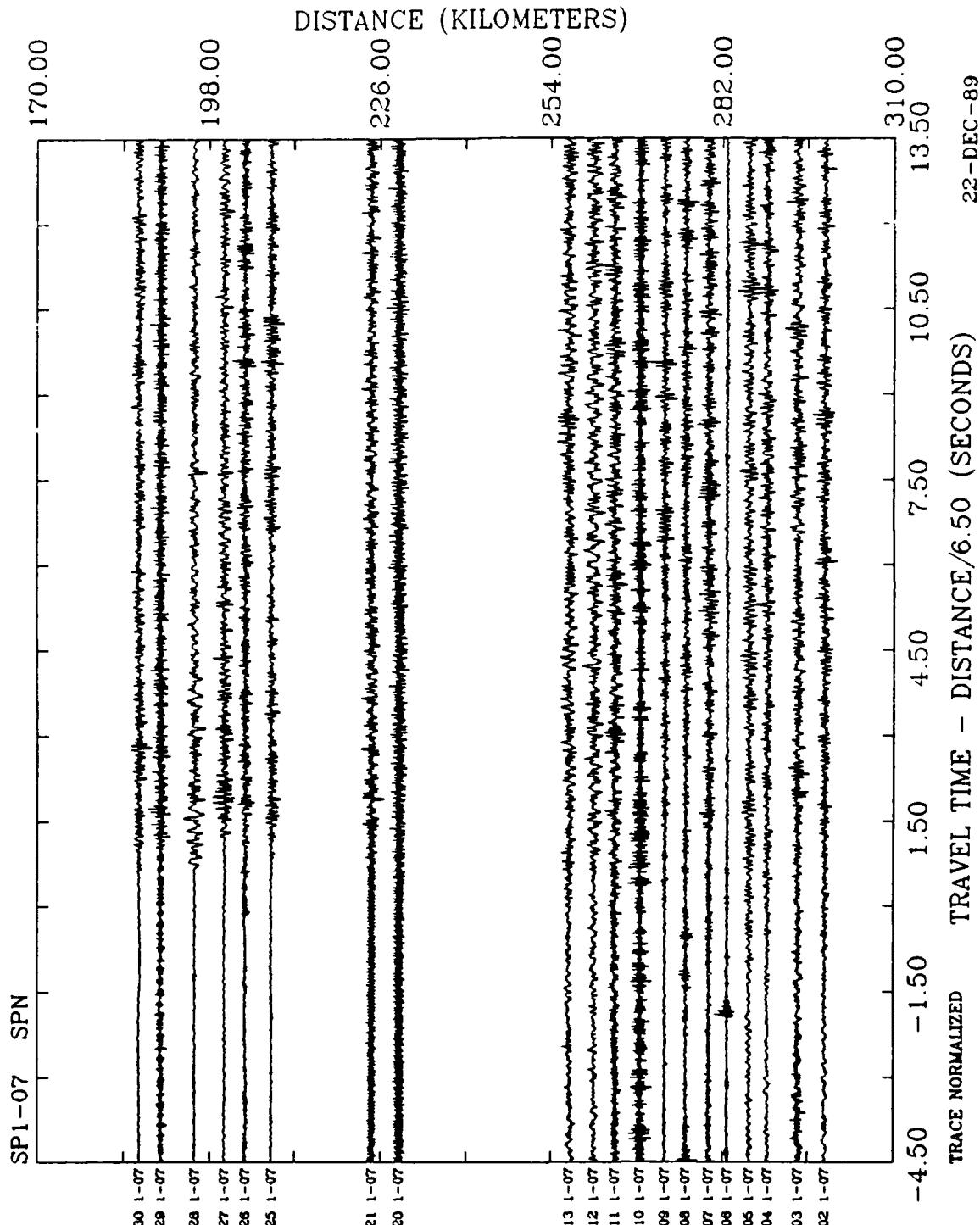


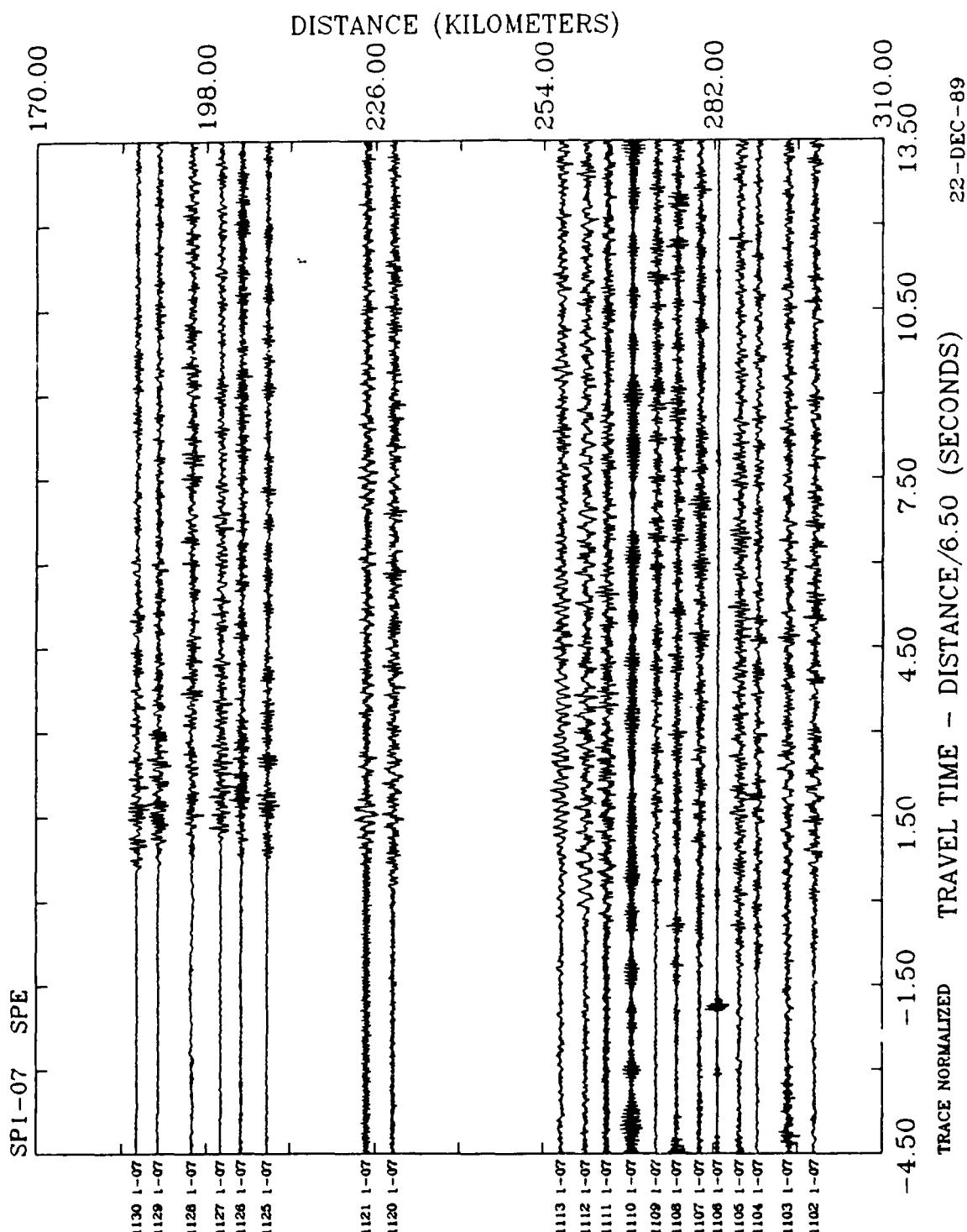
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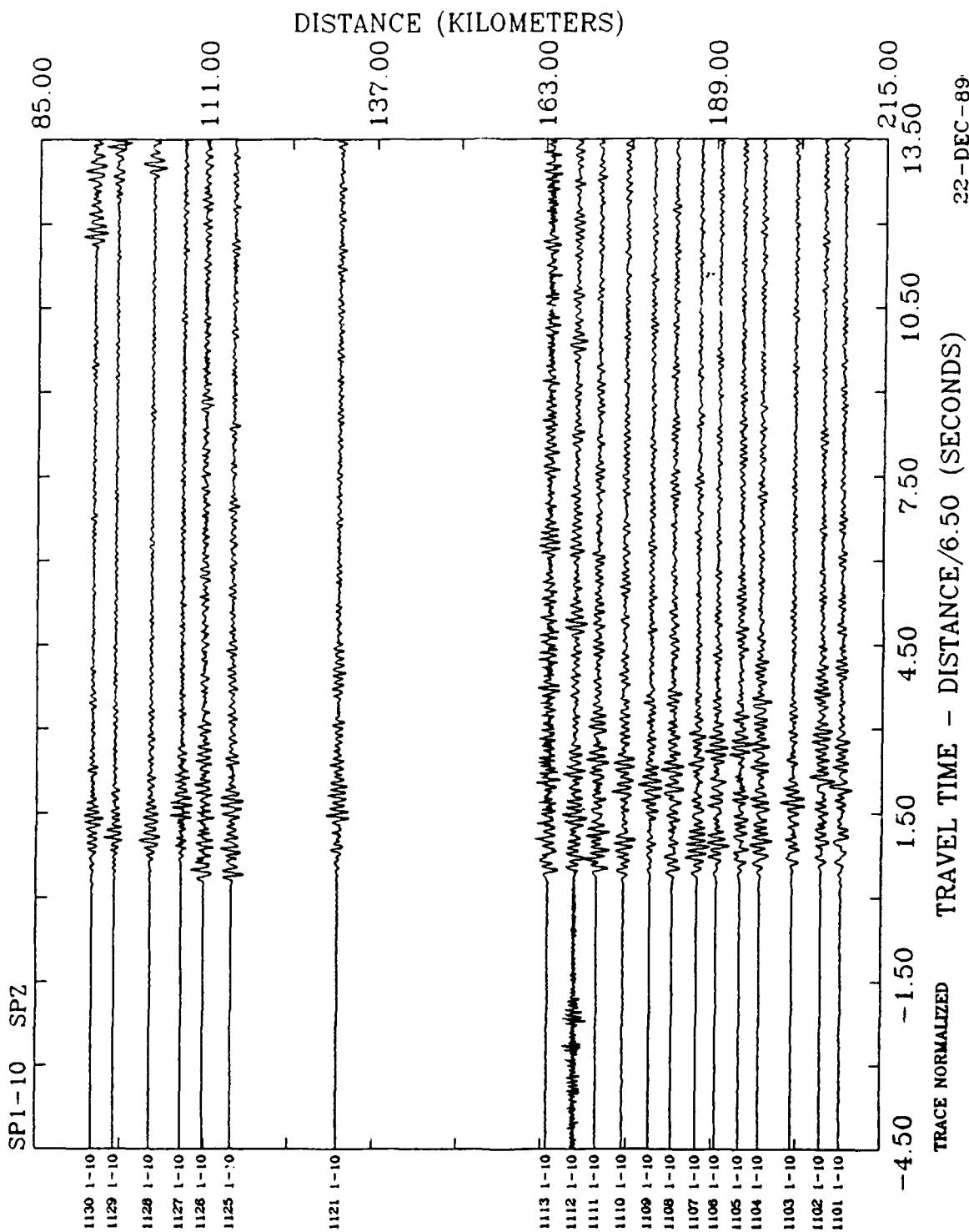
SPZ, SPN, and SPE record sections for Deployment One,  
the \* indicates shot gathers not shown.

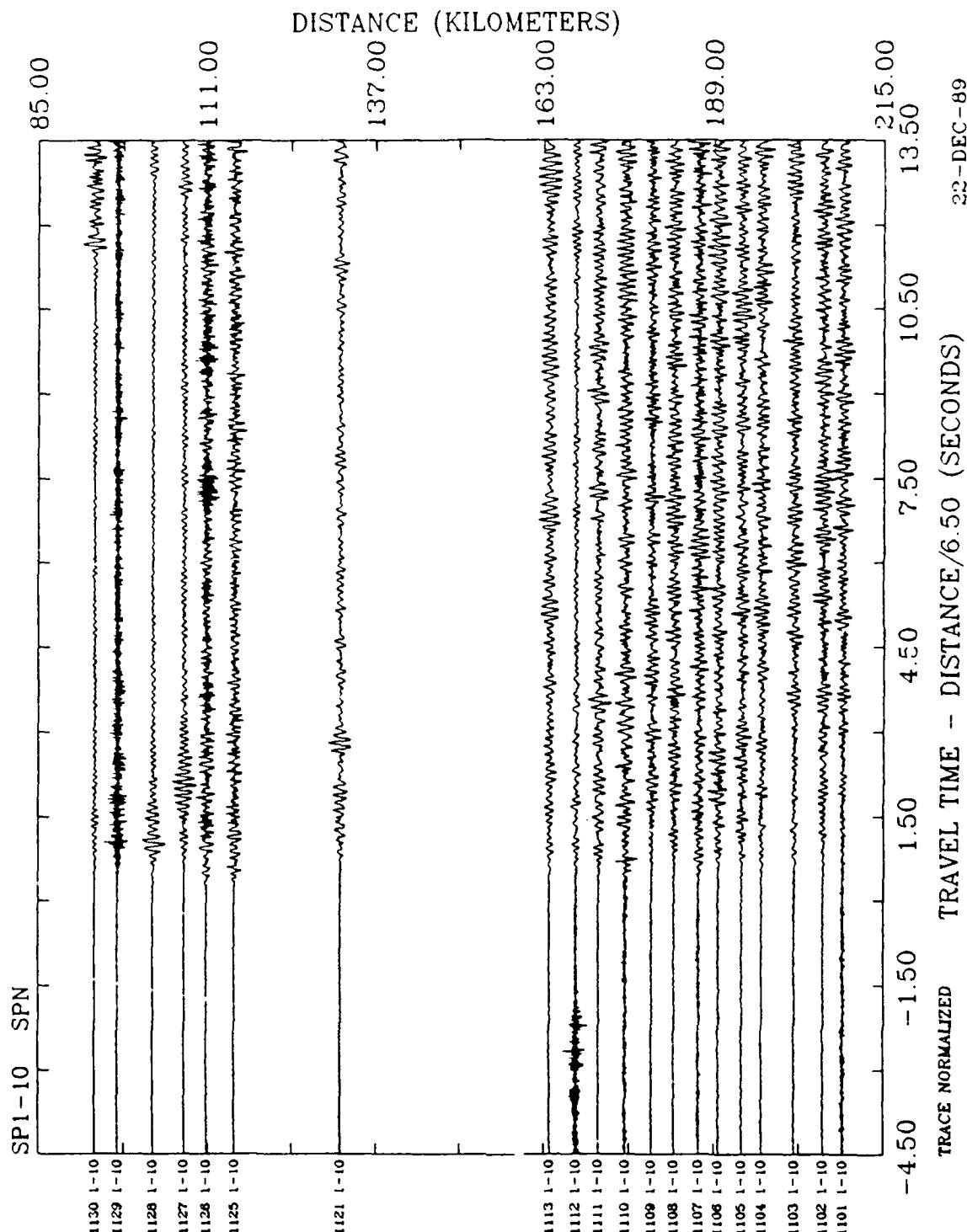
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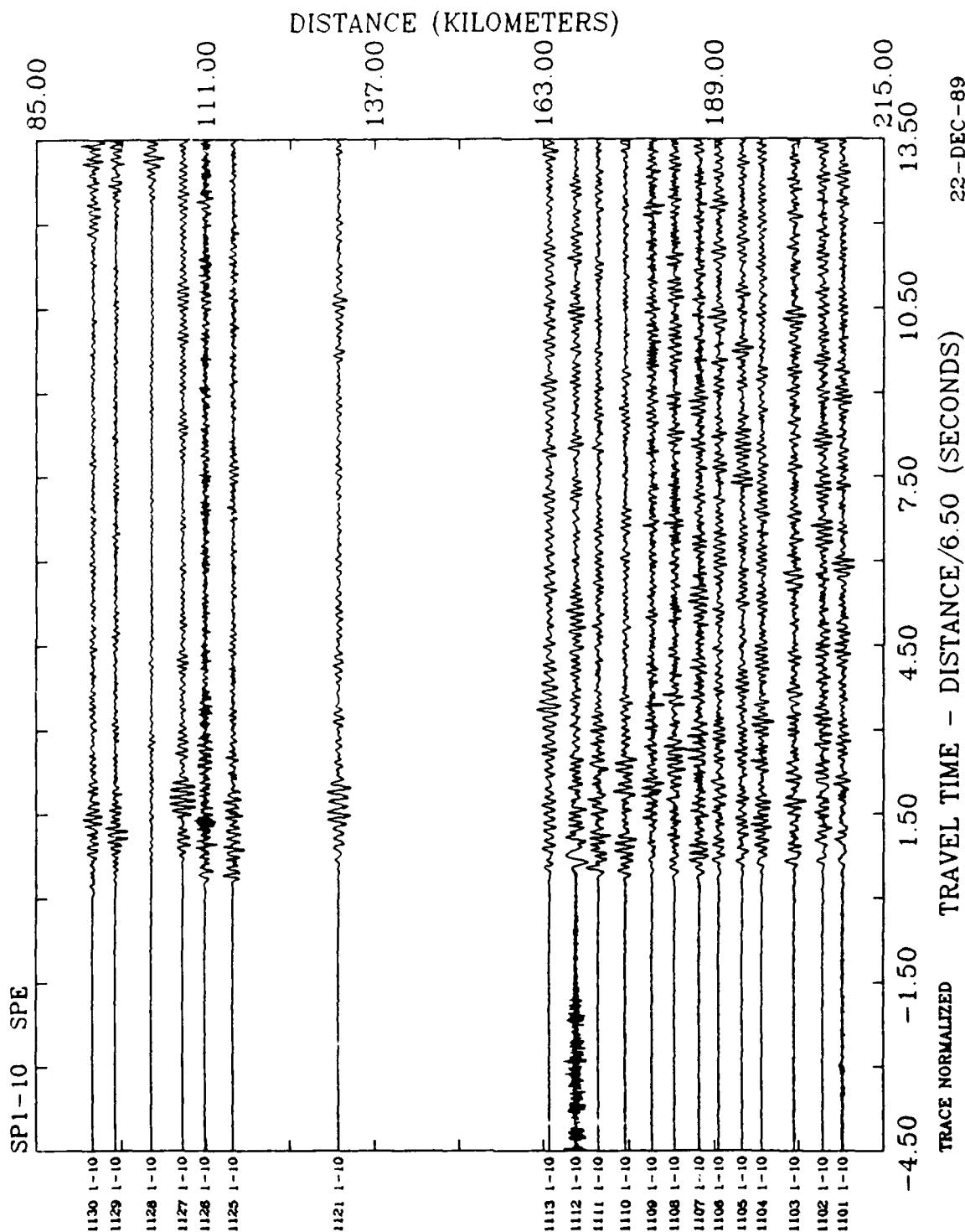


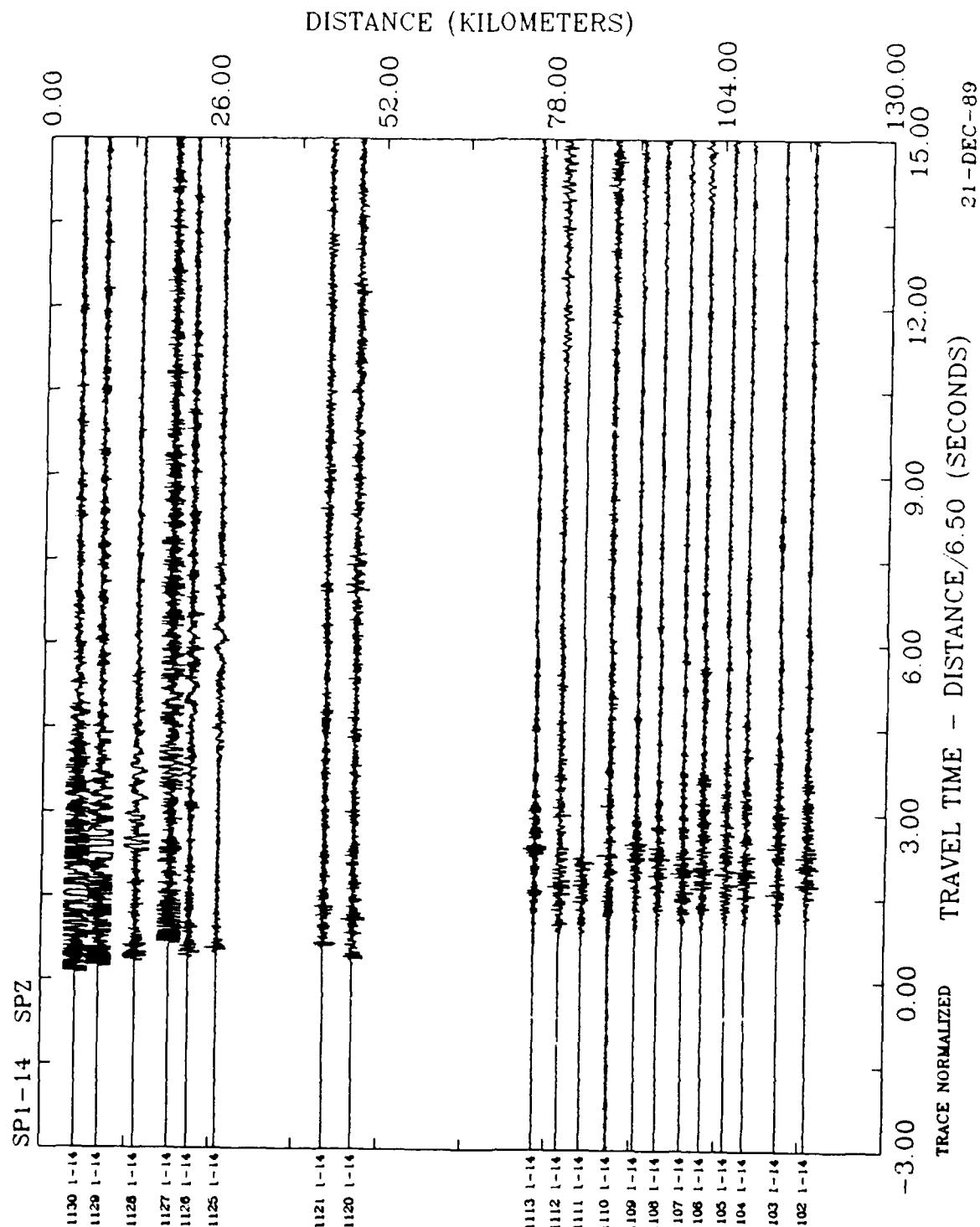


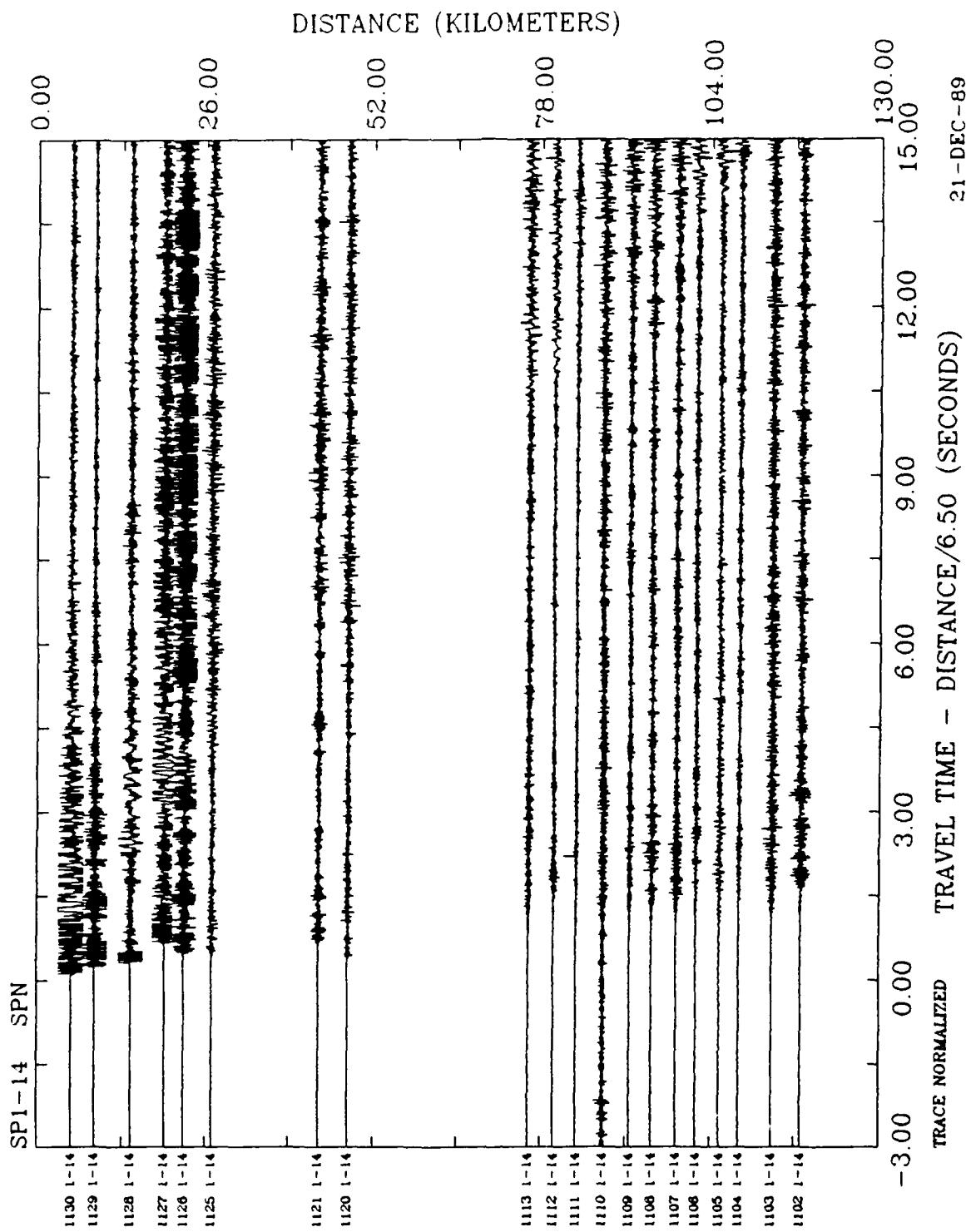


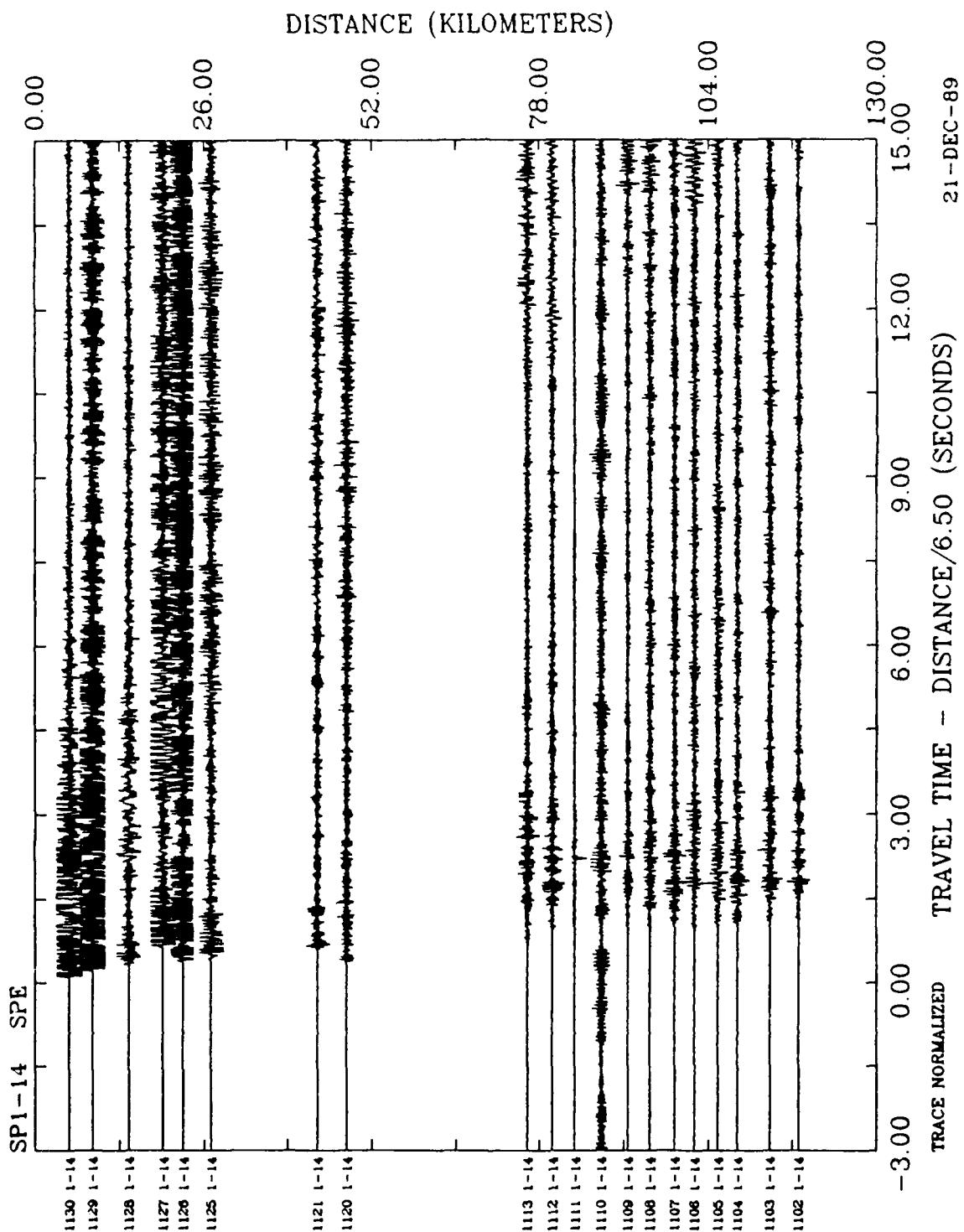


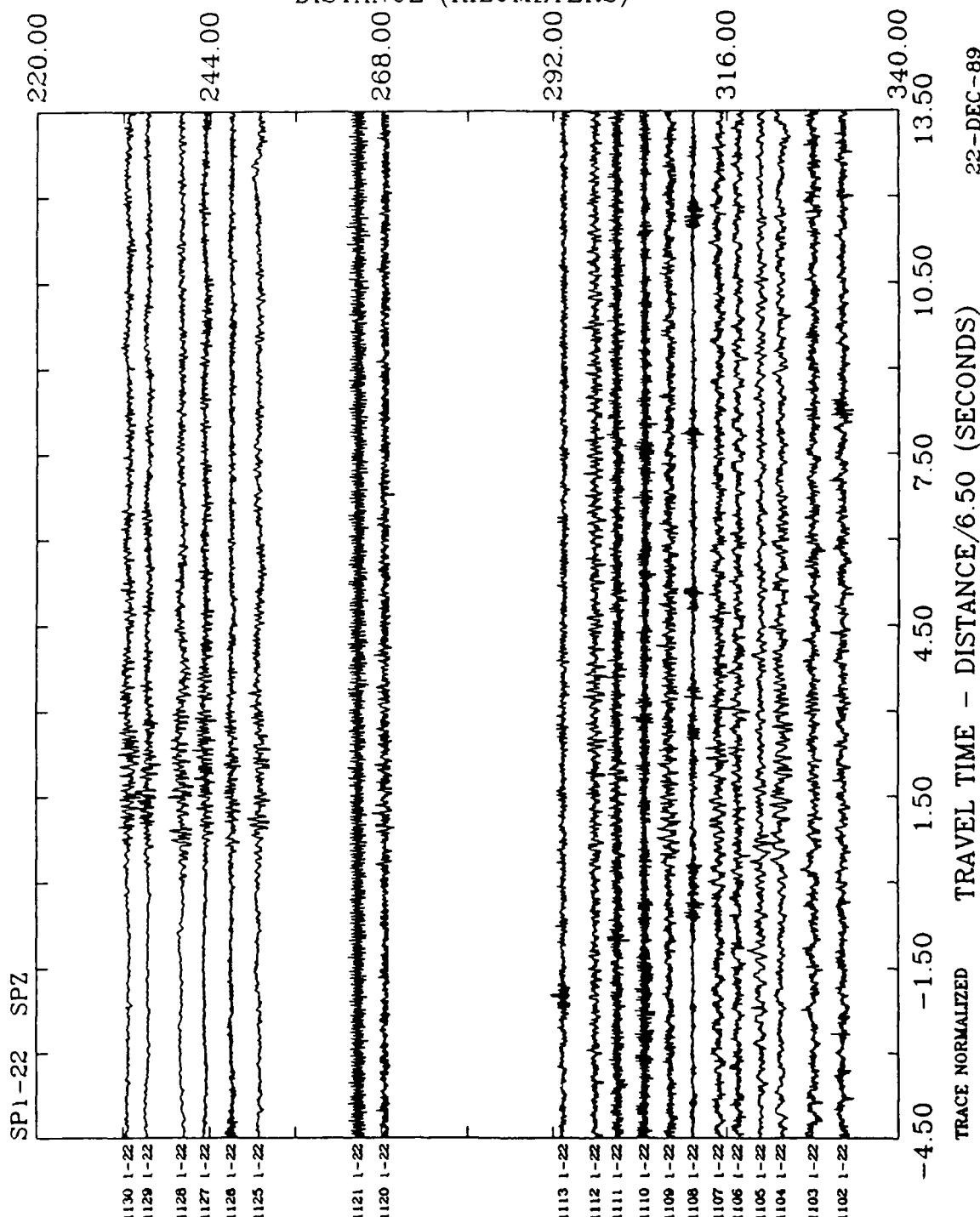


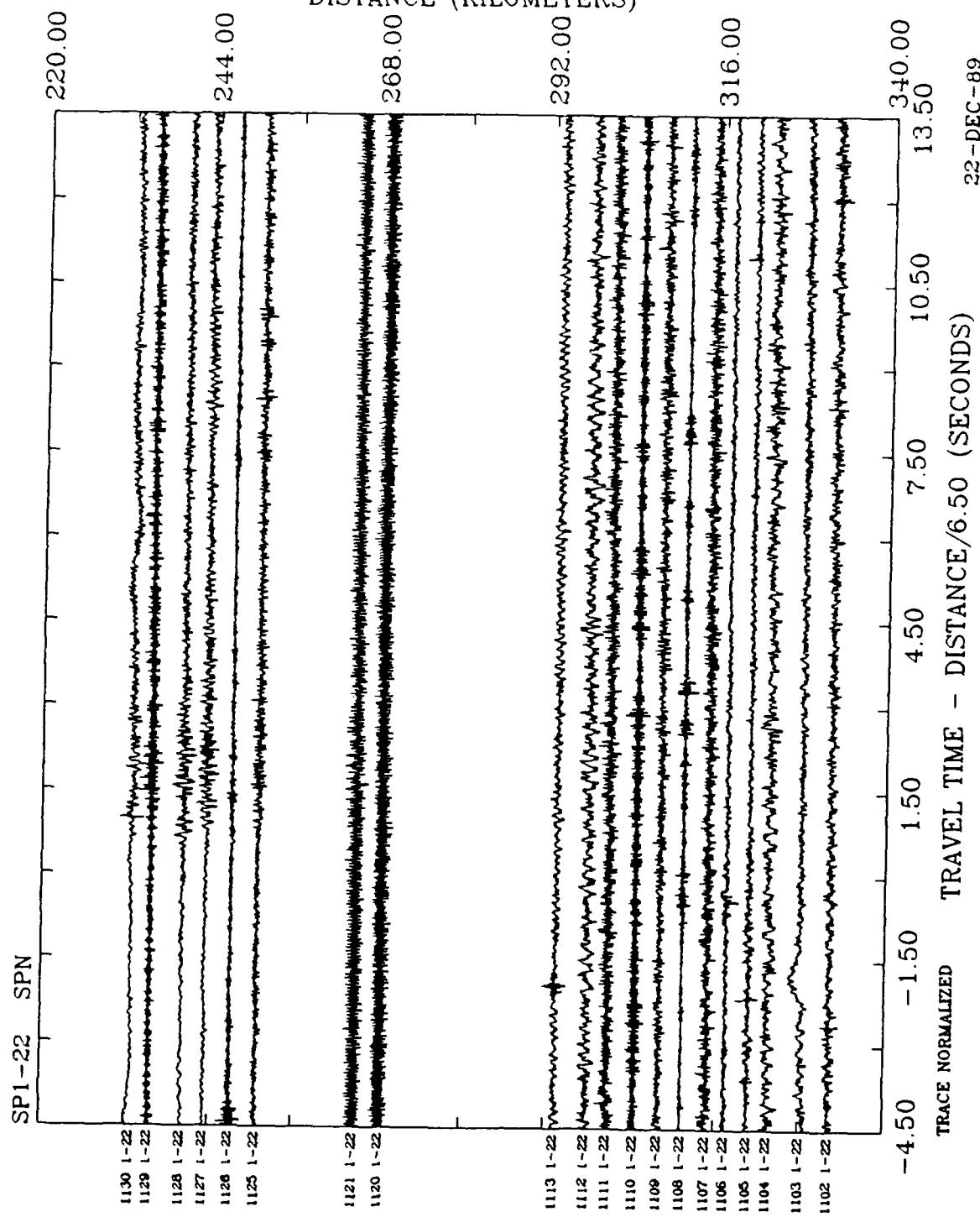












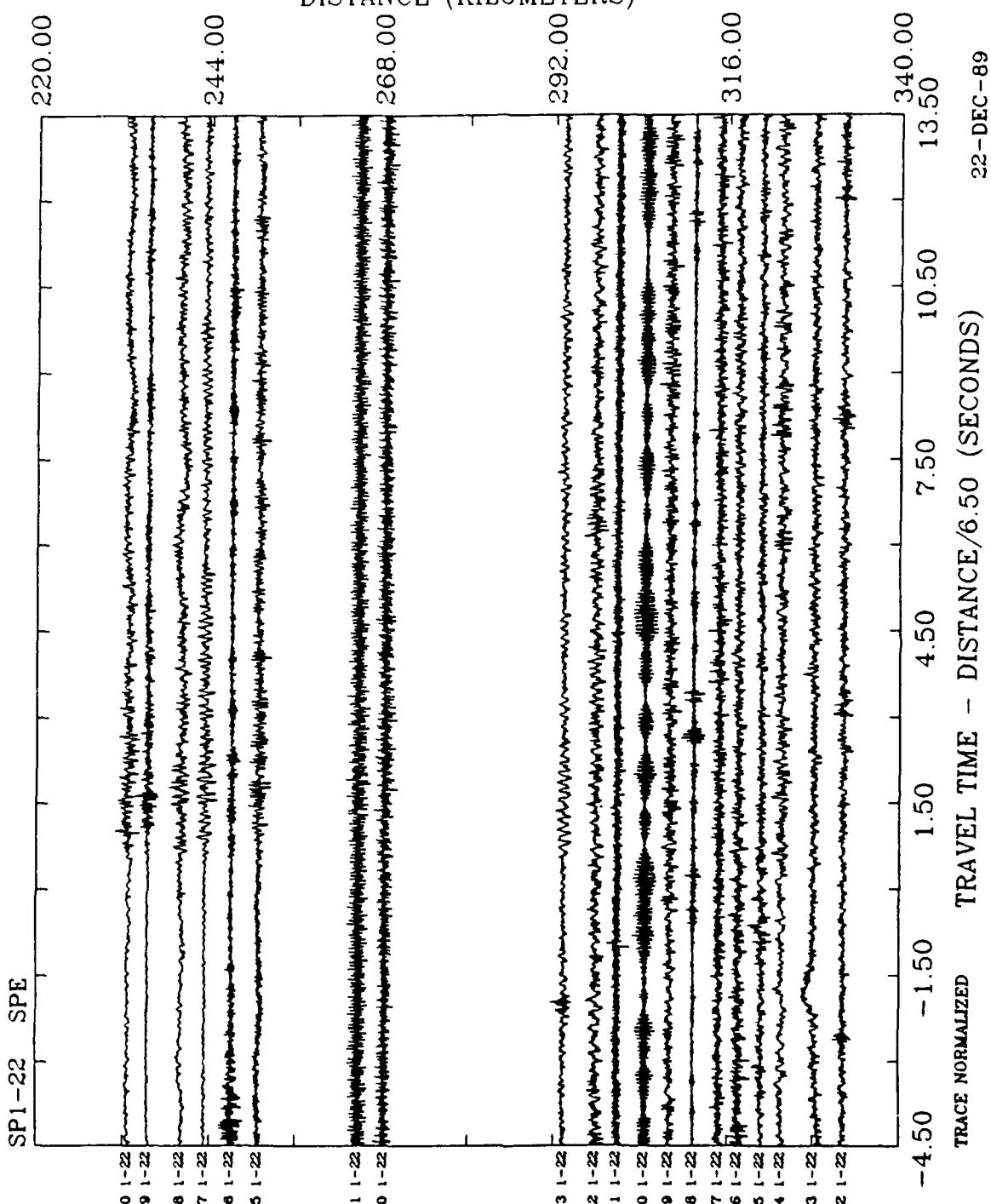
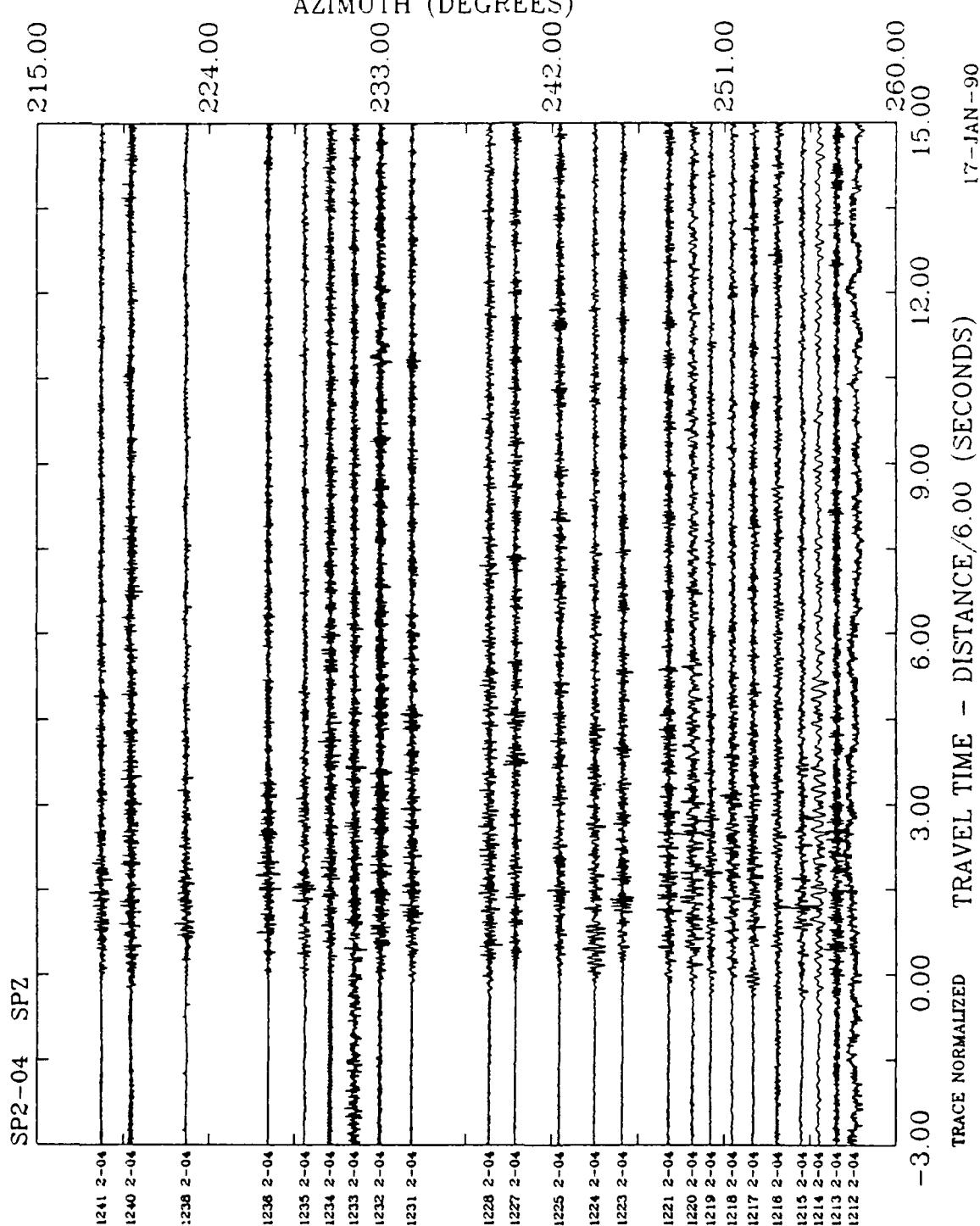
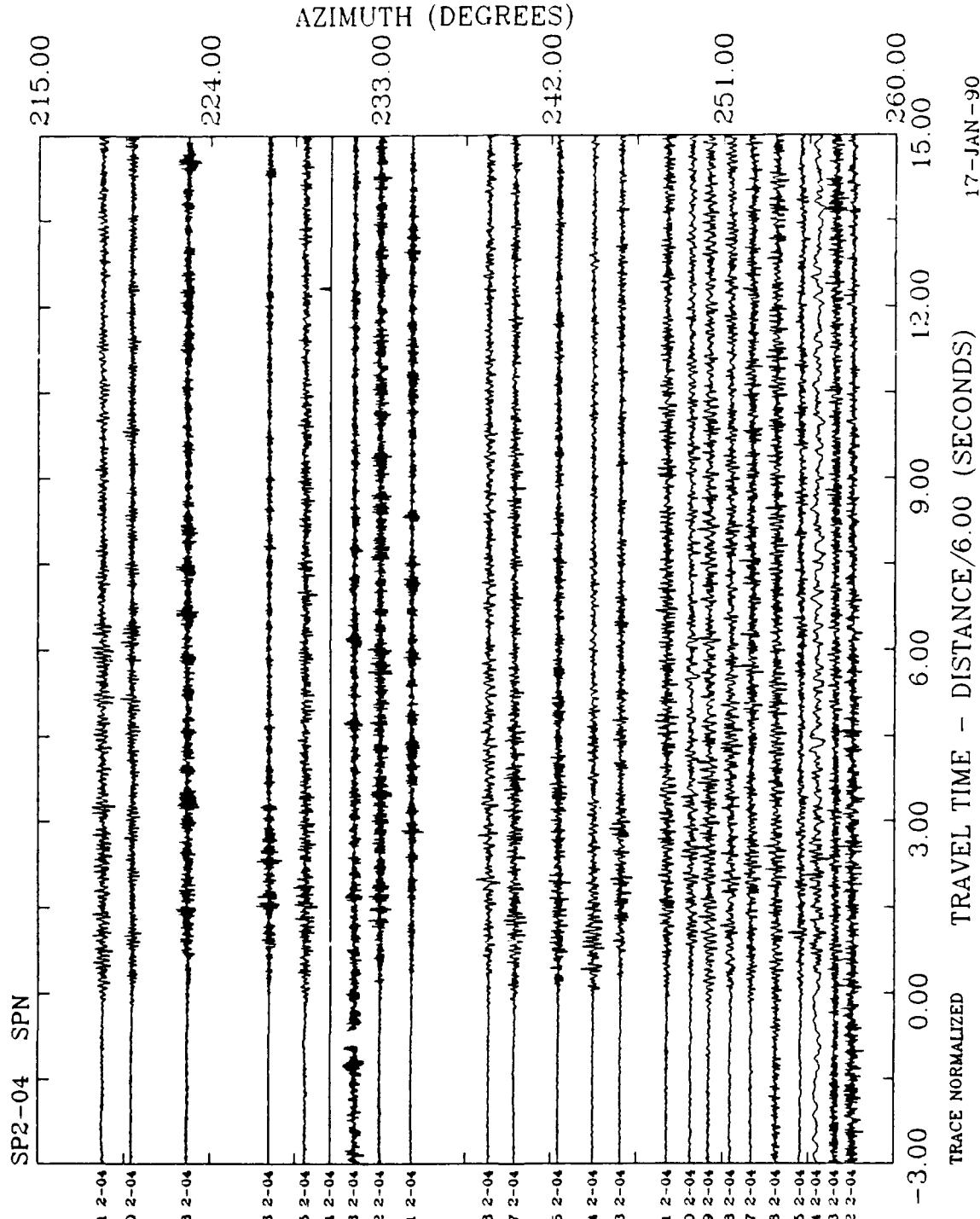


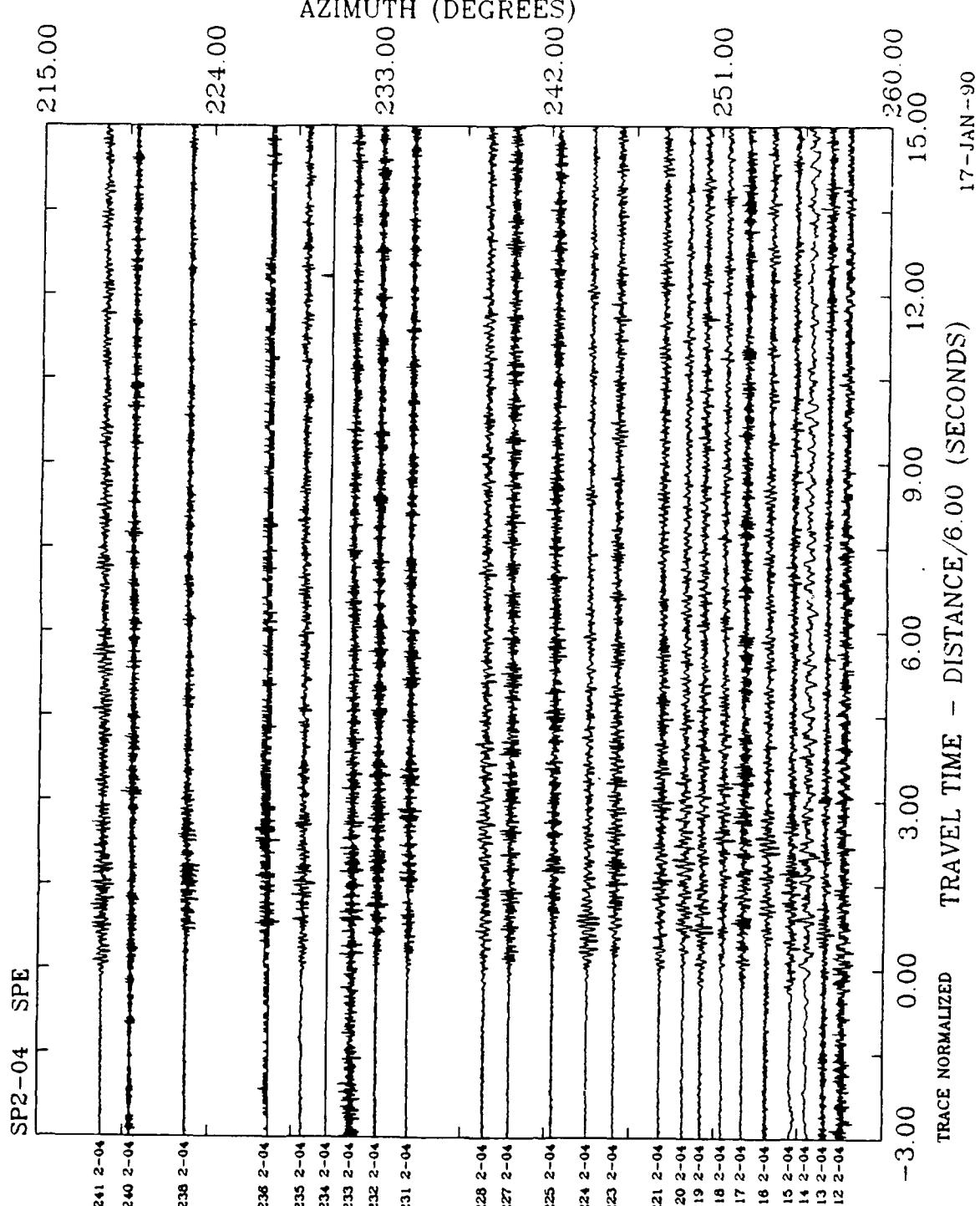
Figure 6.

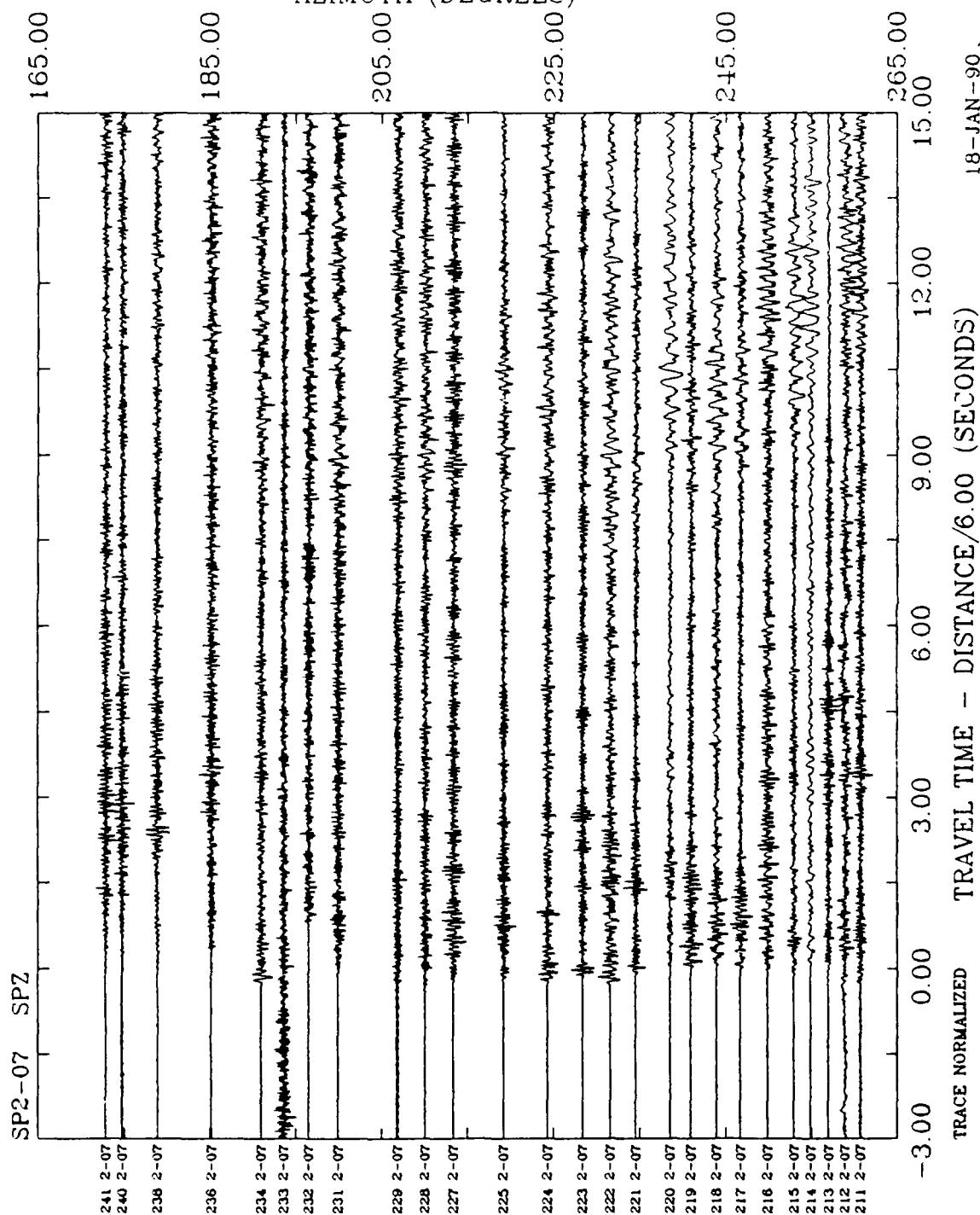
SPZ, SPN, and SPE record sections for Deployment Two.

SP2-04  
SP2-07  
SP2-08  
SP2-09  
SP2-10  
SP2-11  
SP2-12  
SP2-13  
SP2-14  
SP2-17  
SP2-20  
SP2-21  
SP2-22

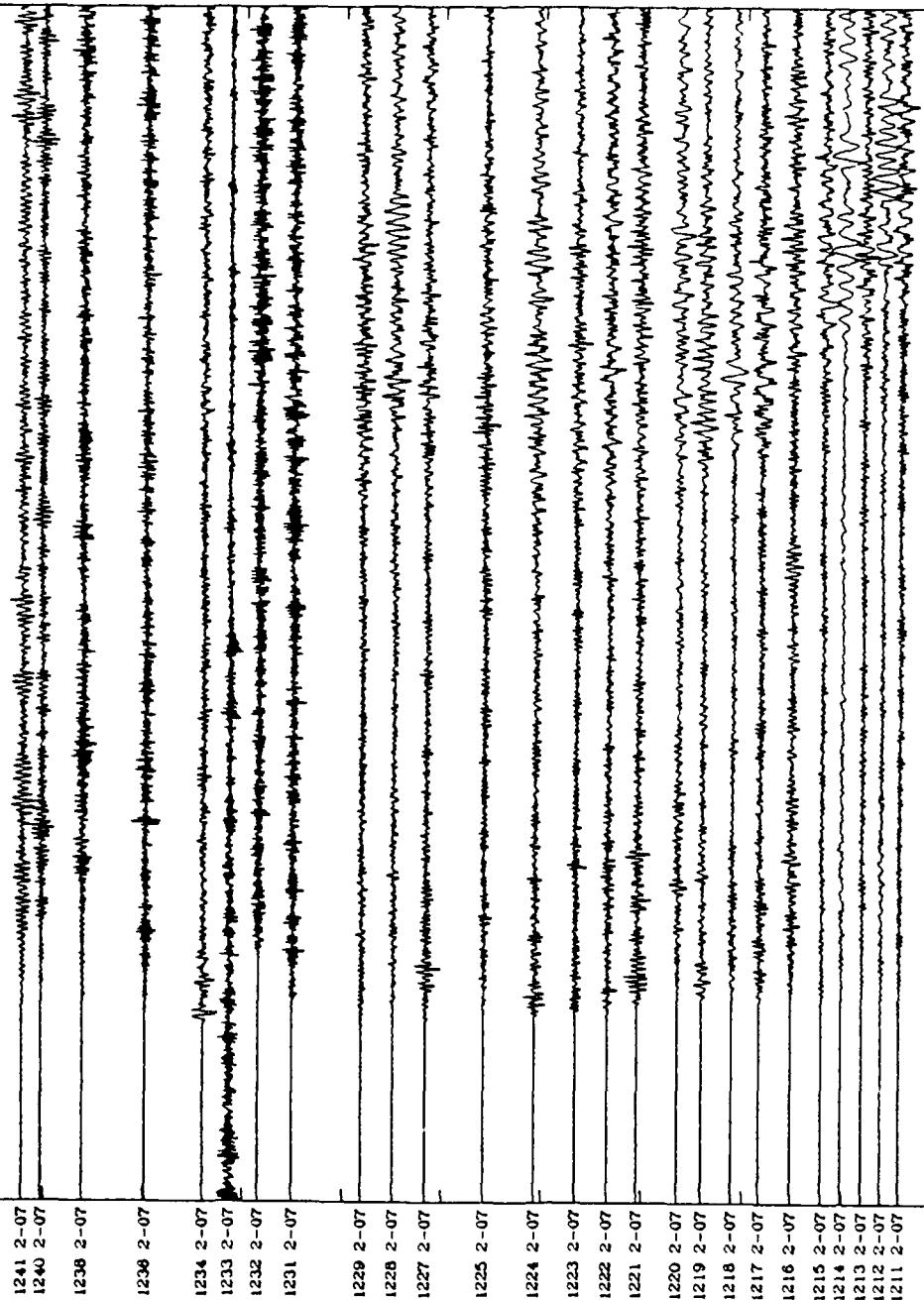








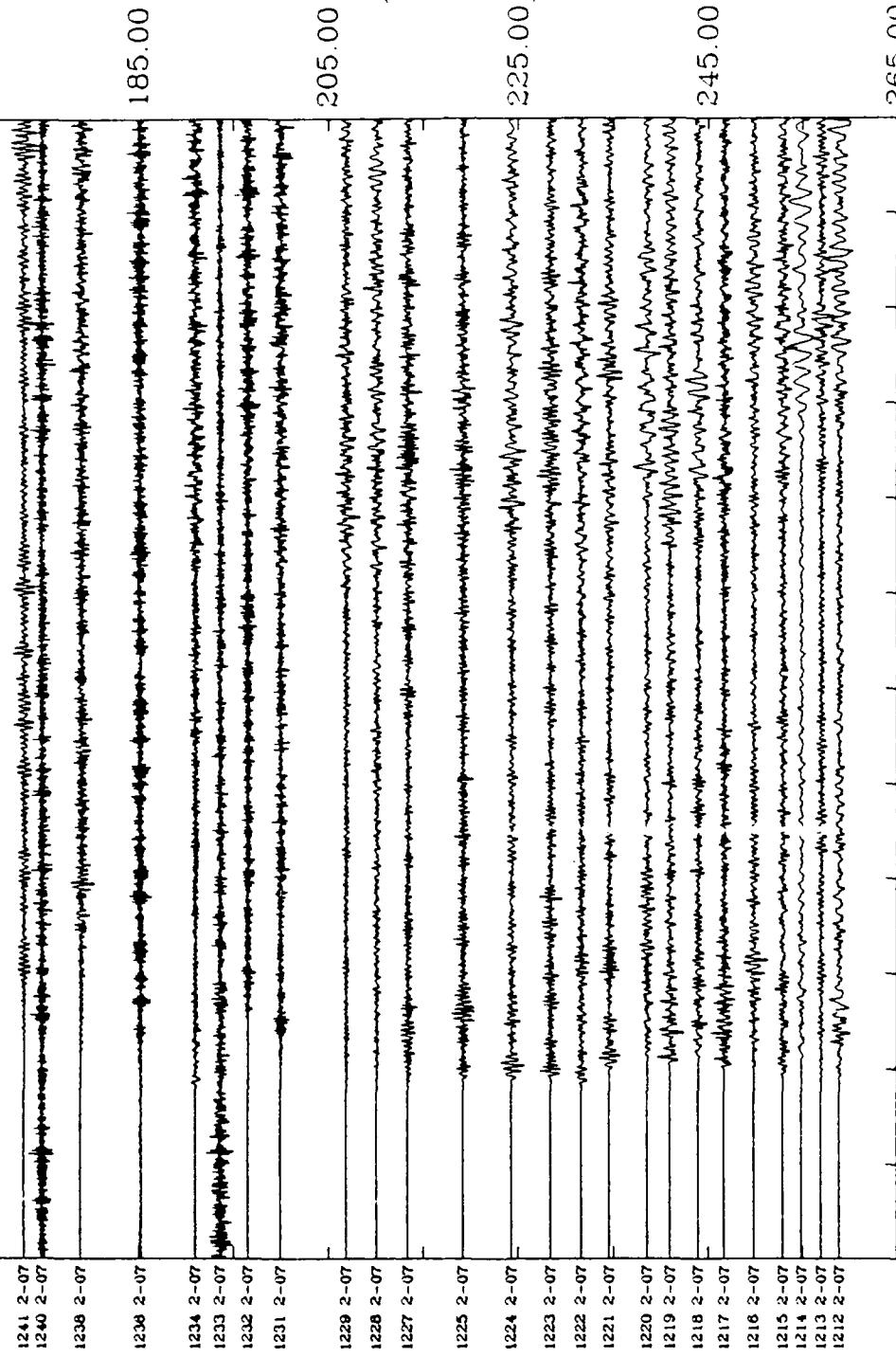
SP2-07 SPN 165.00



165.00

SP2-07 SPE

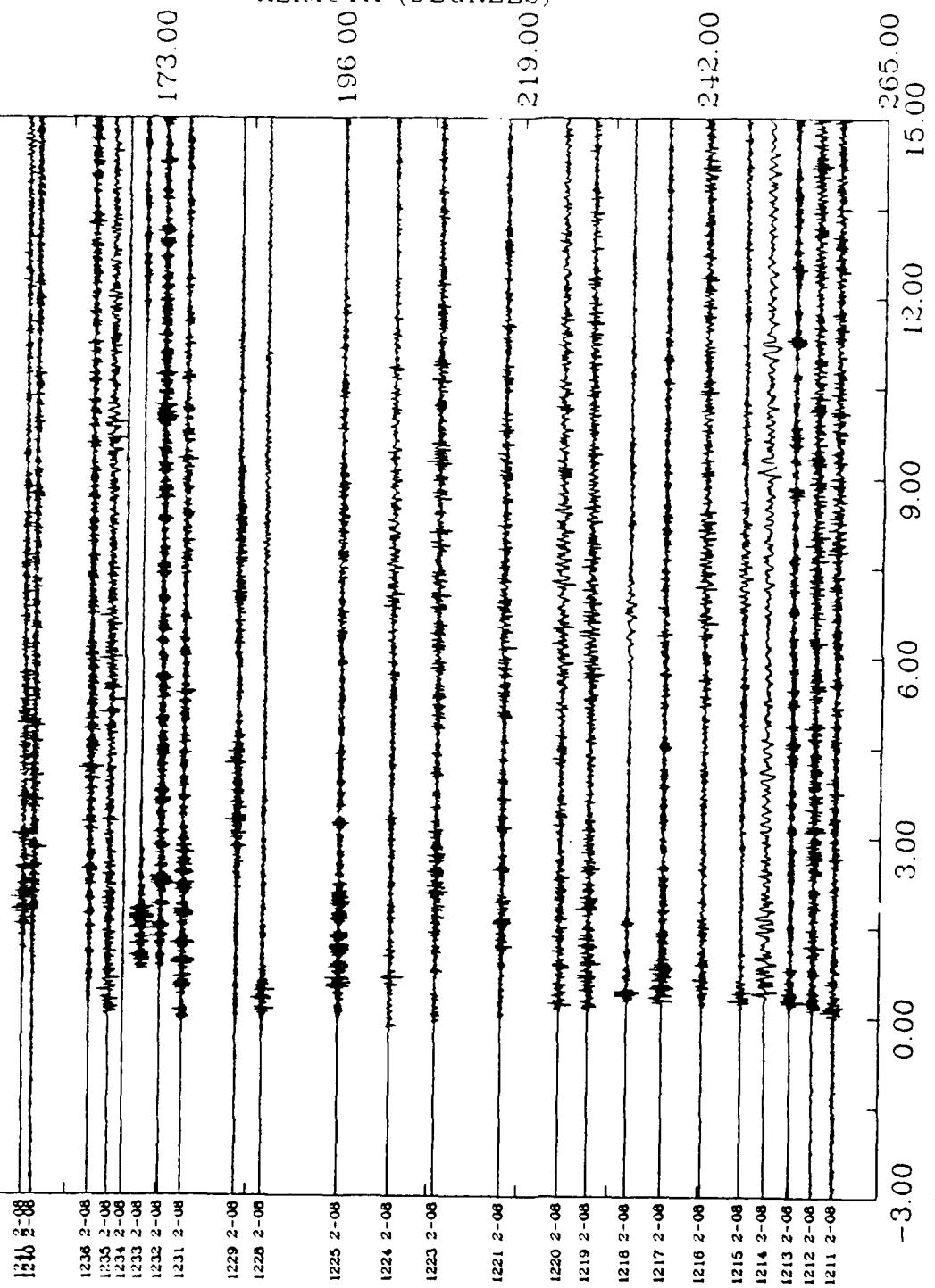
AZIMUTH (DEGREES)



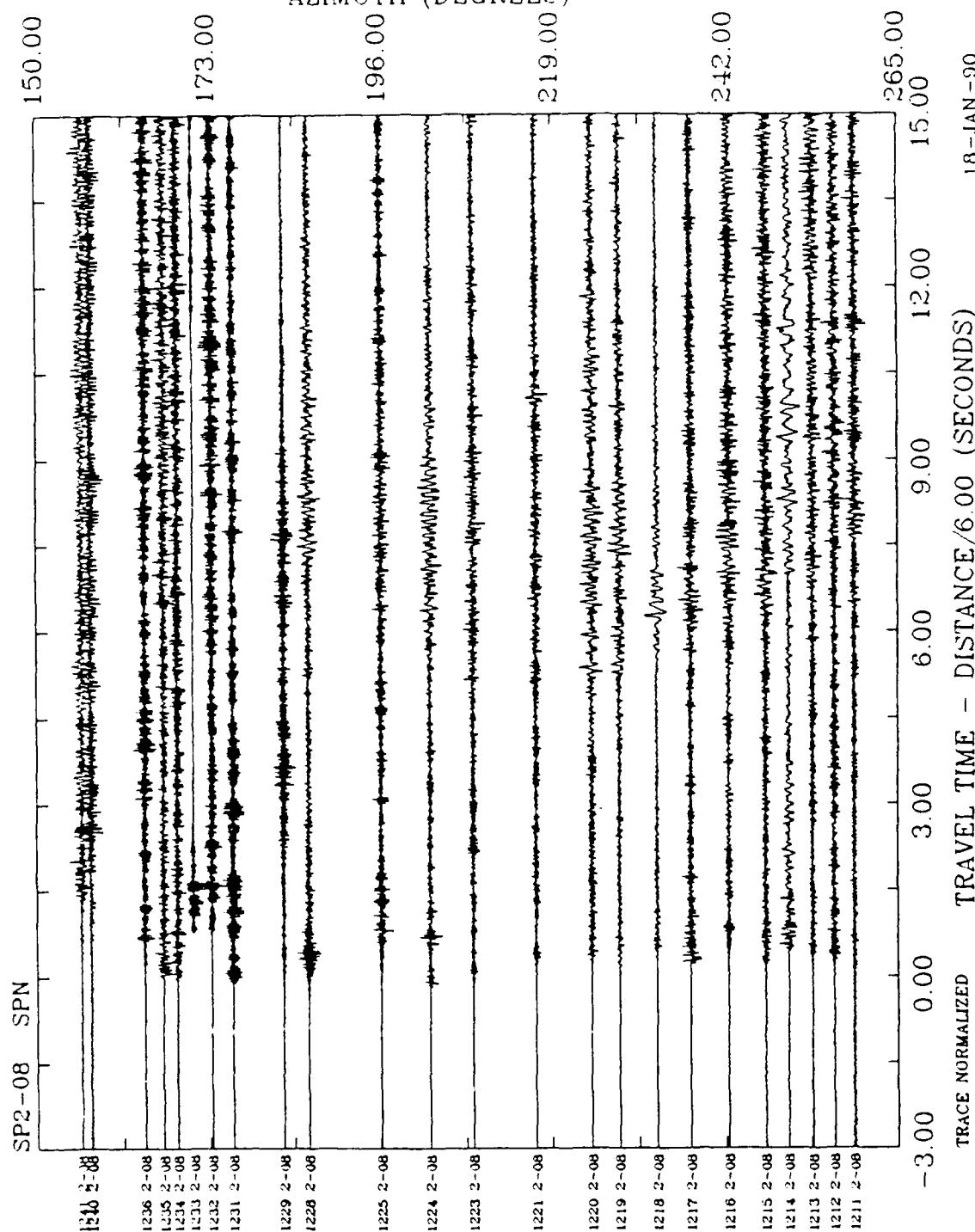
-3.00 0.00 3.00 6.00 9.00 12.00 15.00 265.00

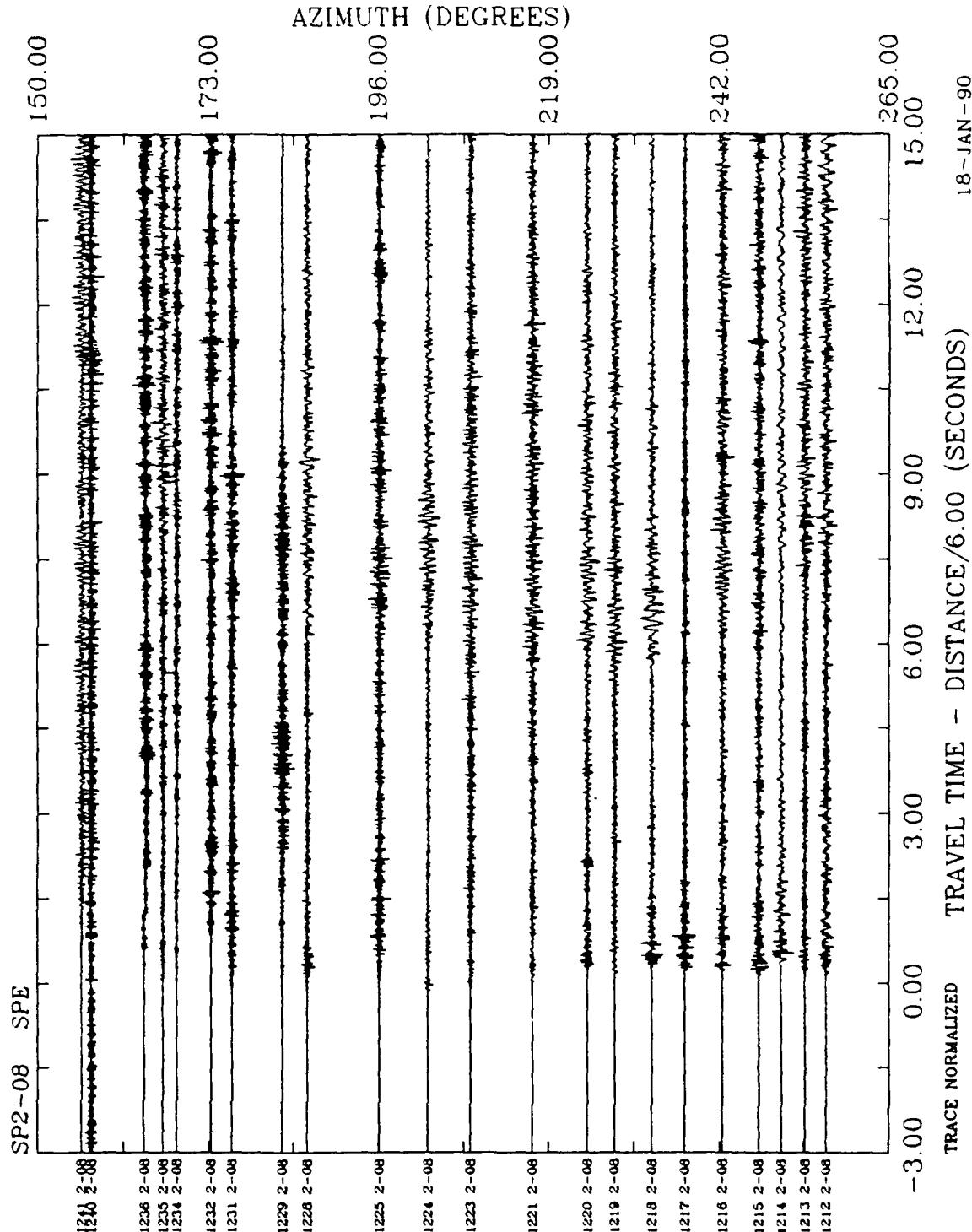
TRACE NORMALIZED TRAVEL TIME - DISTANCE/6.00 (SECONDS) 18-JAN-90

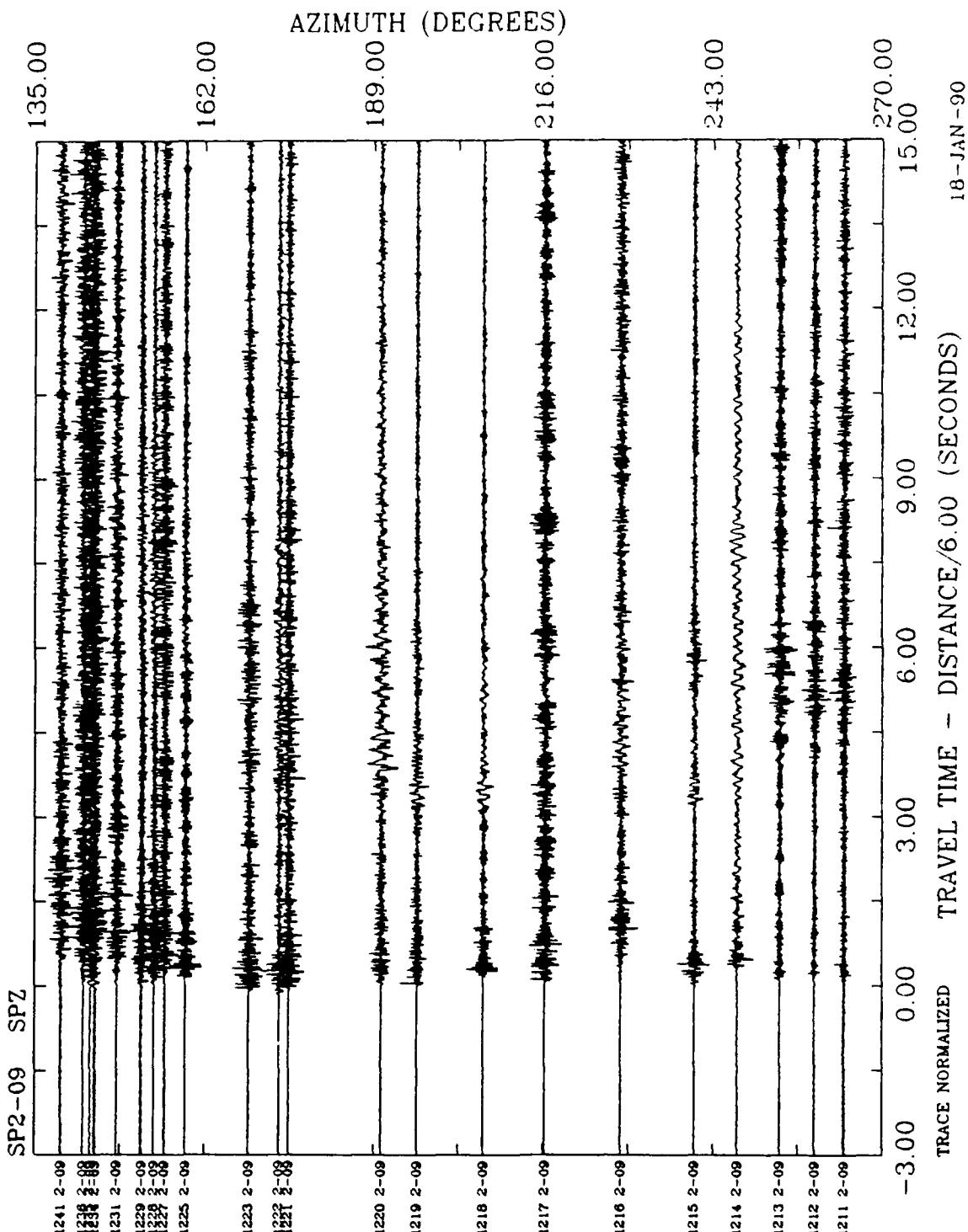
SP2-08 SPZ 150.00



18-JAN-90







SP2-09 SPN 130.00

1241 2-09  
1238 2-09  
1231 2-09  
1239 2-09  
1229 2-09  
1225 2-09

158.00

AZIMUTH (DEGREES)

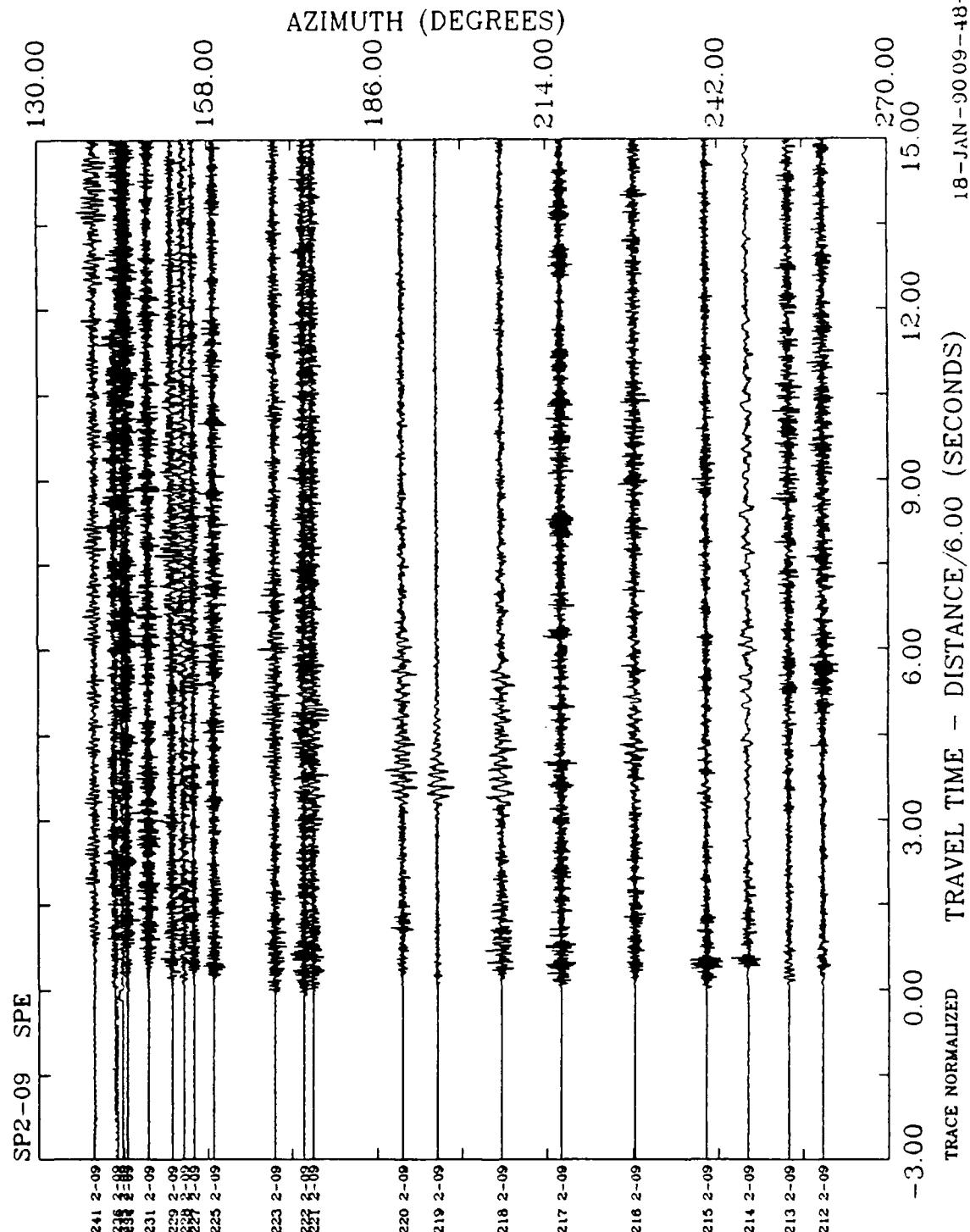
186.00

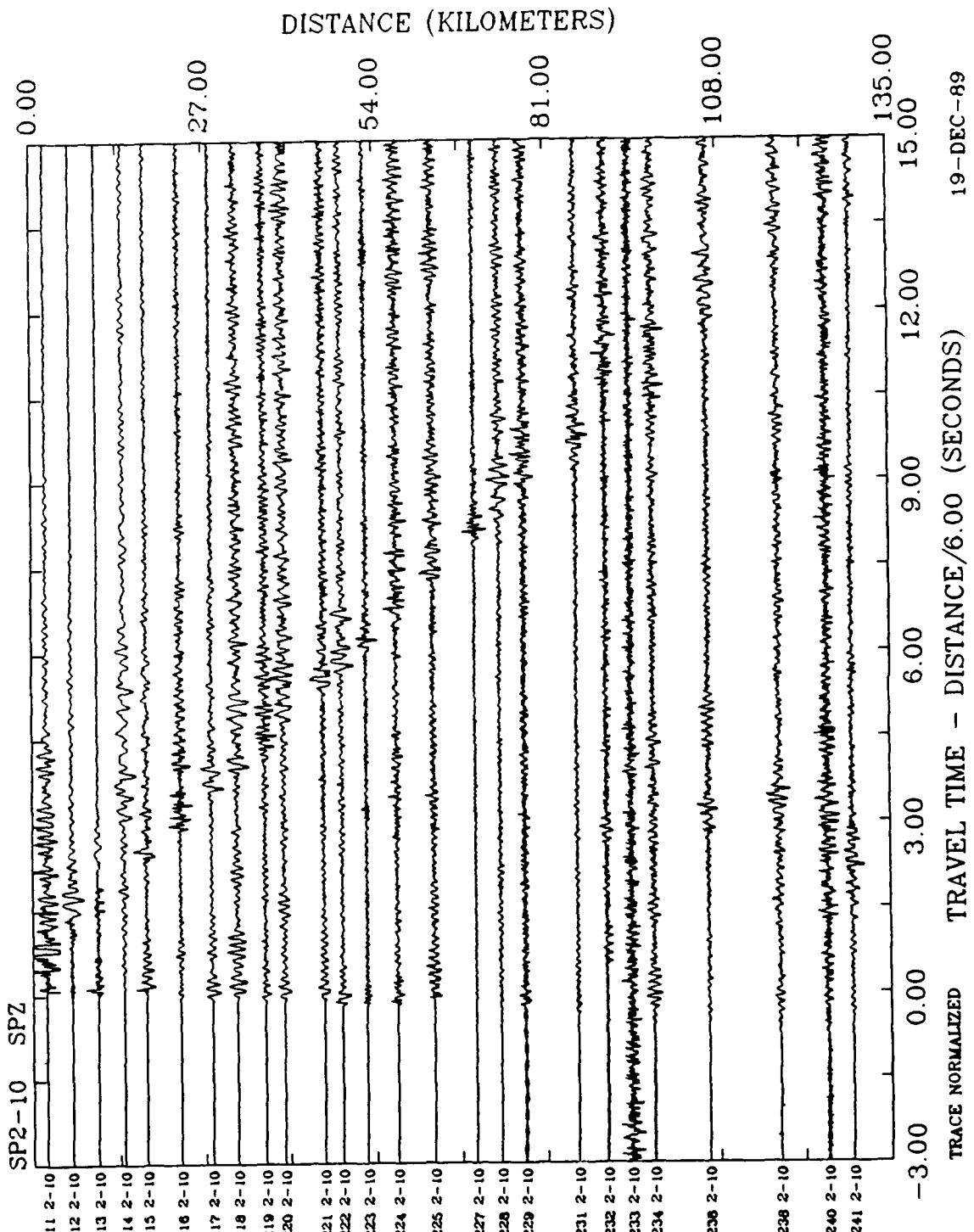
214.00

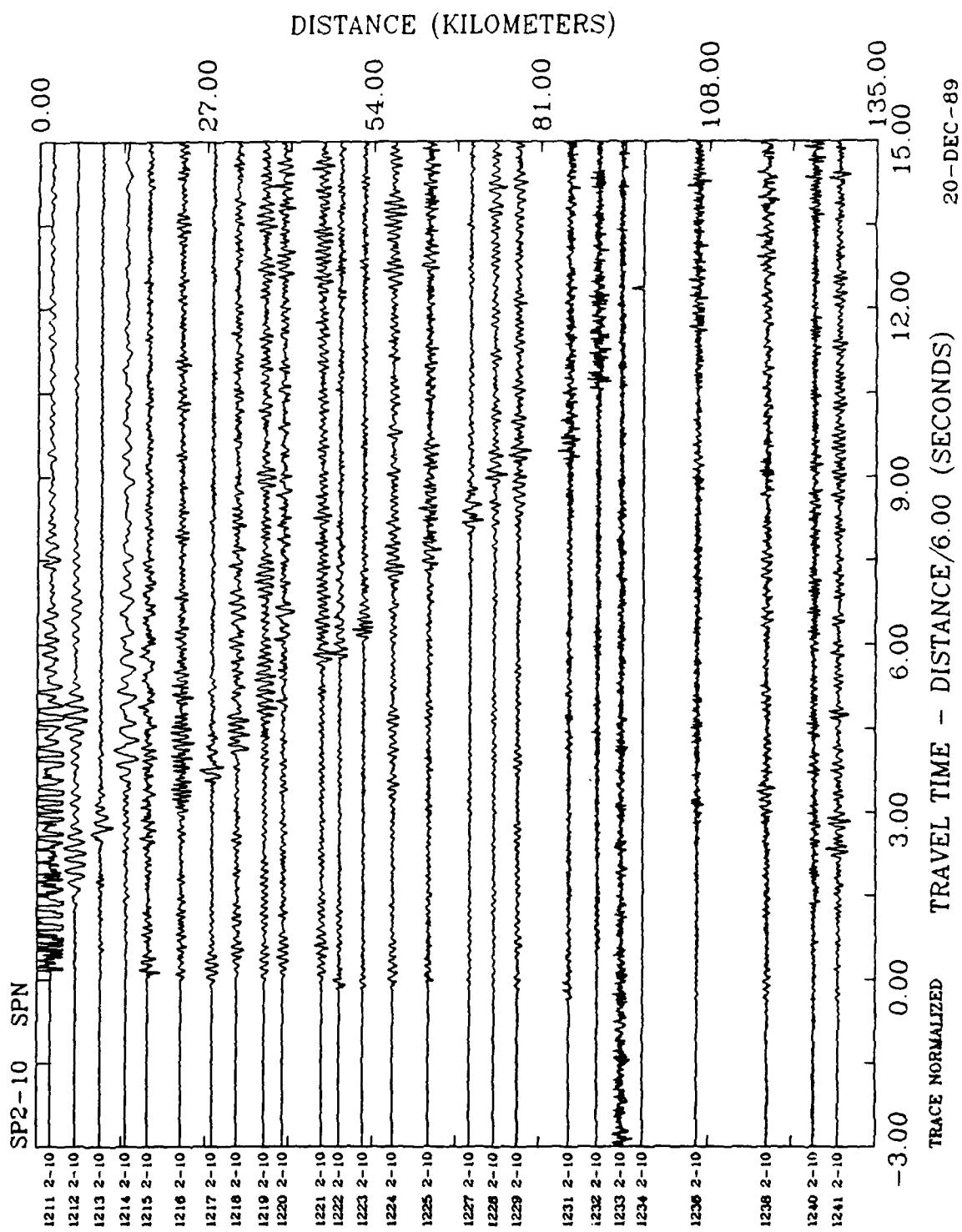
242.00

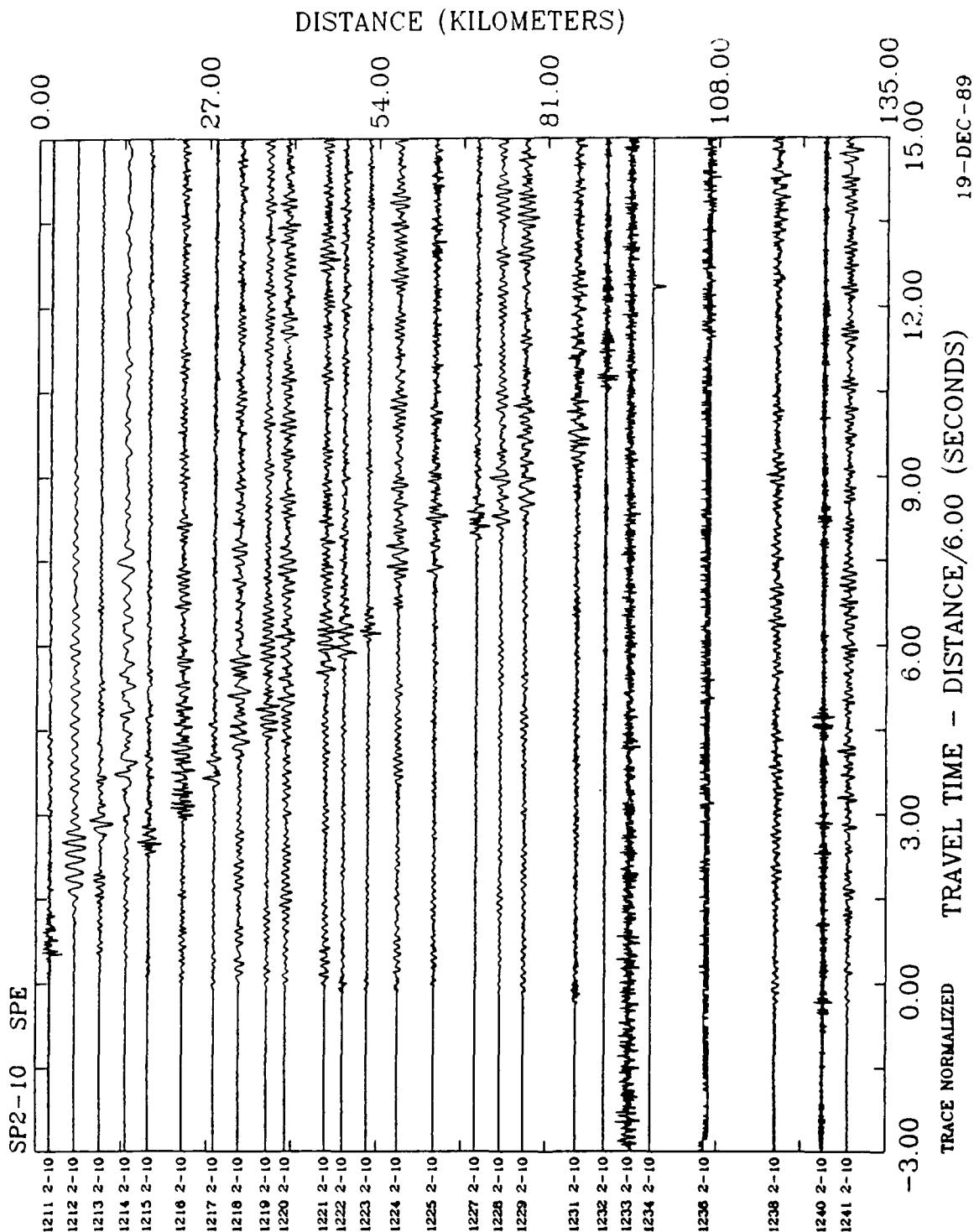
-3.00 0.00 3.00 6.00 9.00 12.00 15.00 270.00

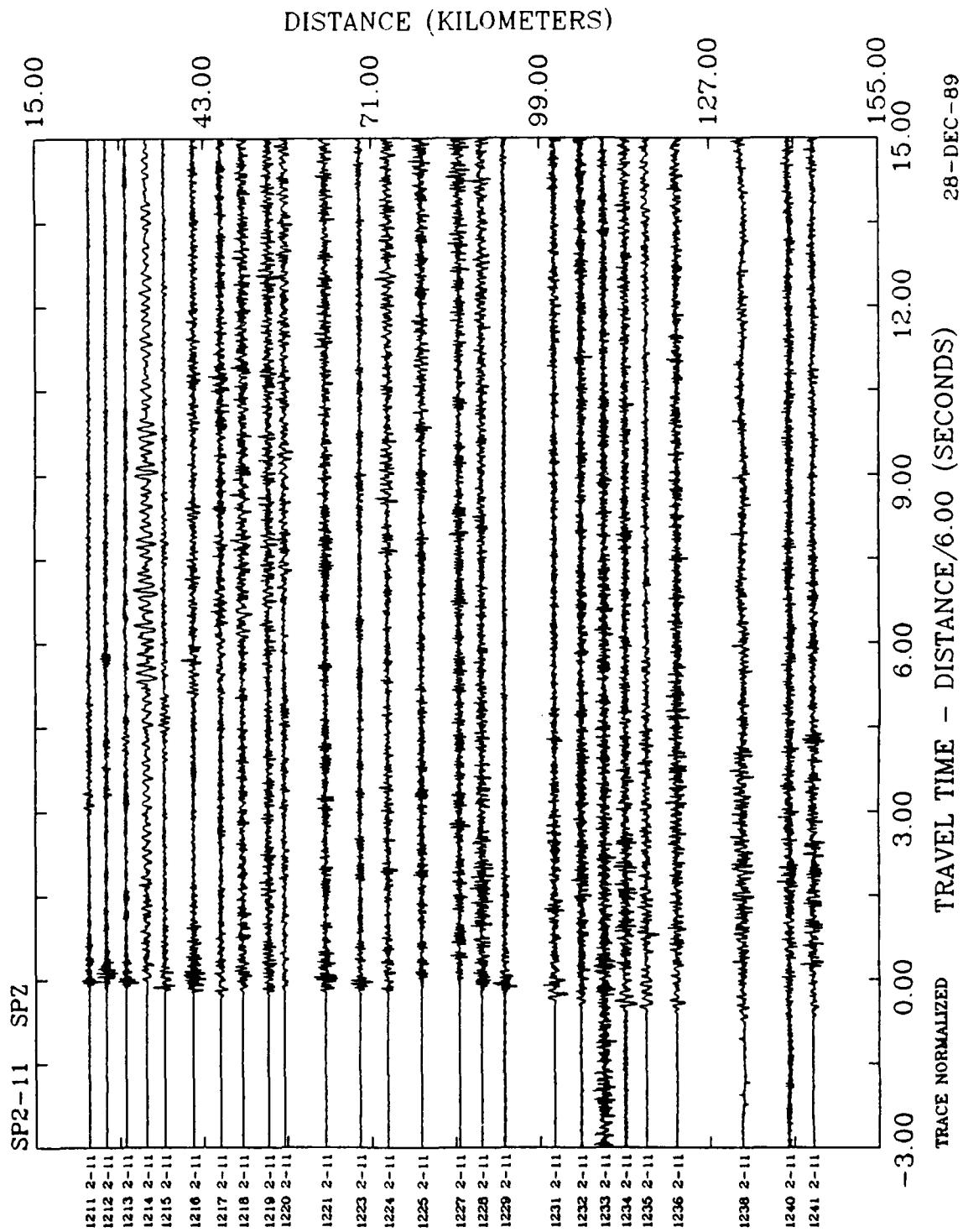
TRACE NORMALIZED TRAVEL TIME - DISTANCE/6.00 (SECONDS) 18-JAN-90











SP2-11 SPN

15.00

1211 2-11  
1212 2-11  
1213 2-11  
1214 2-11  
1215 2-11  
1216 2-11  
1217 2-11  
1218 2-11  
1219 2-11  
1220 2-11

43.00

DISTANCE (KILOMETERS)

71.00

99.00

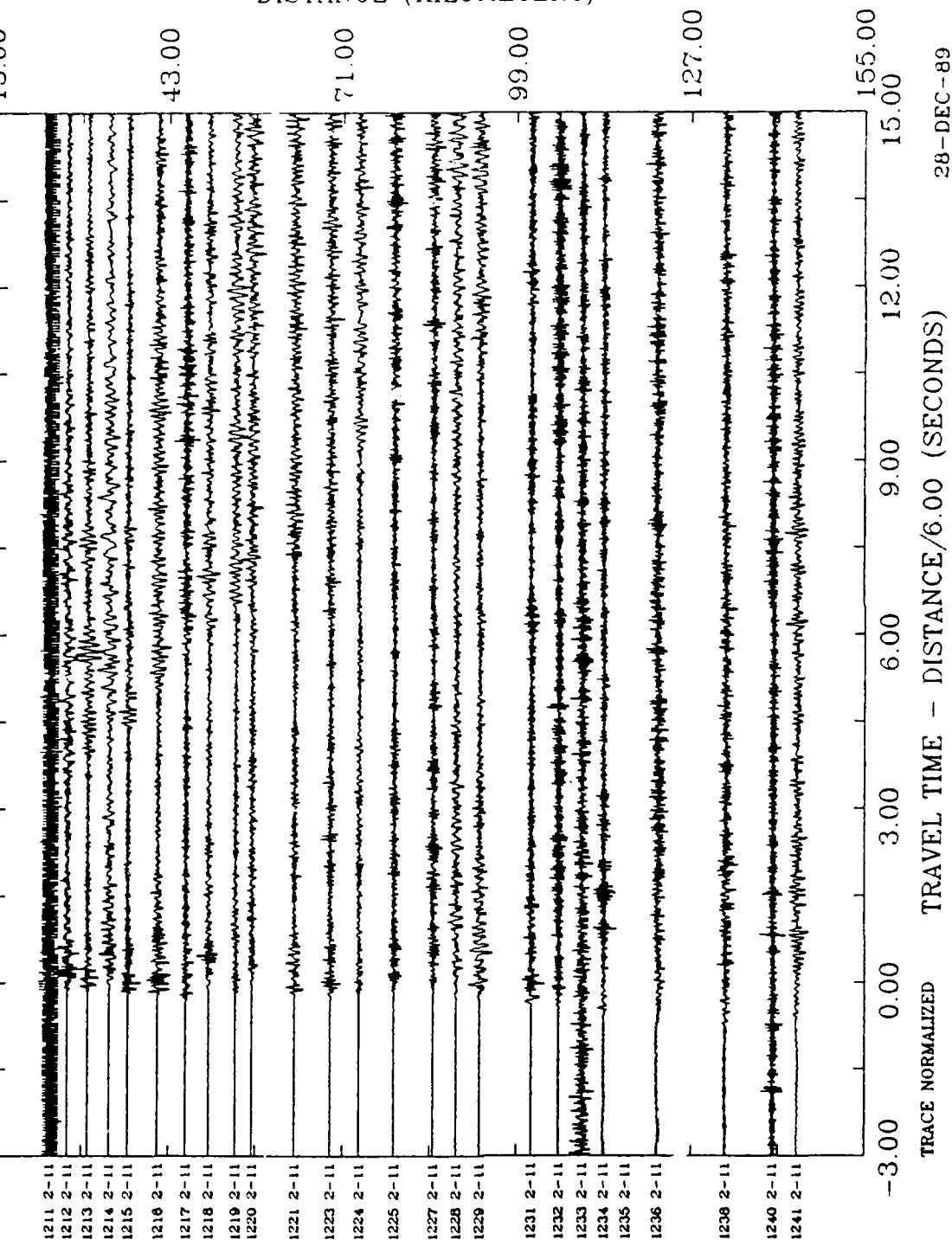
127.00

-3.00 0.00 3.00 6.00 9.00 12.00 15.00 155.00

TRACE NORMALIZED TRAVEL TIME - DISTANCE/6.00 (SECONDS)

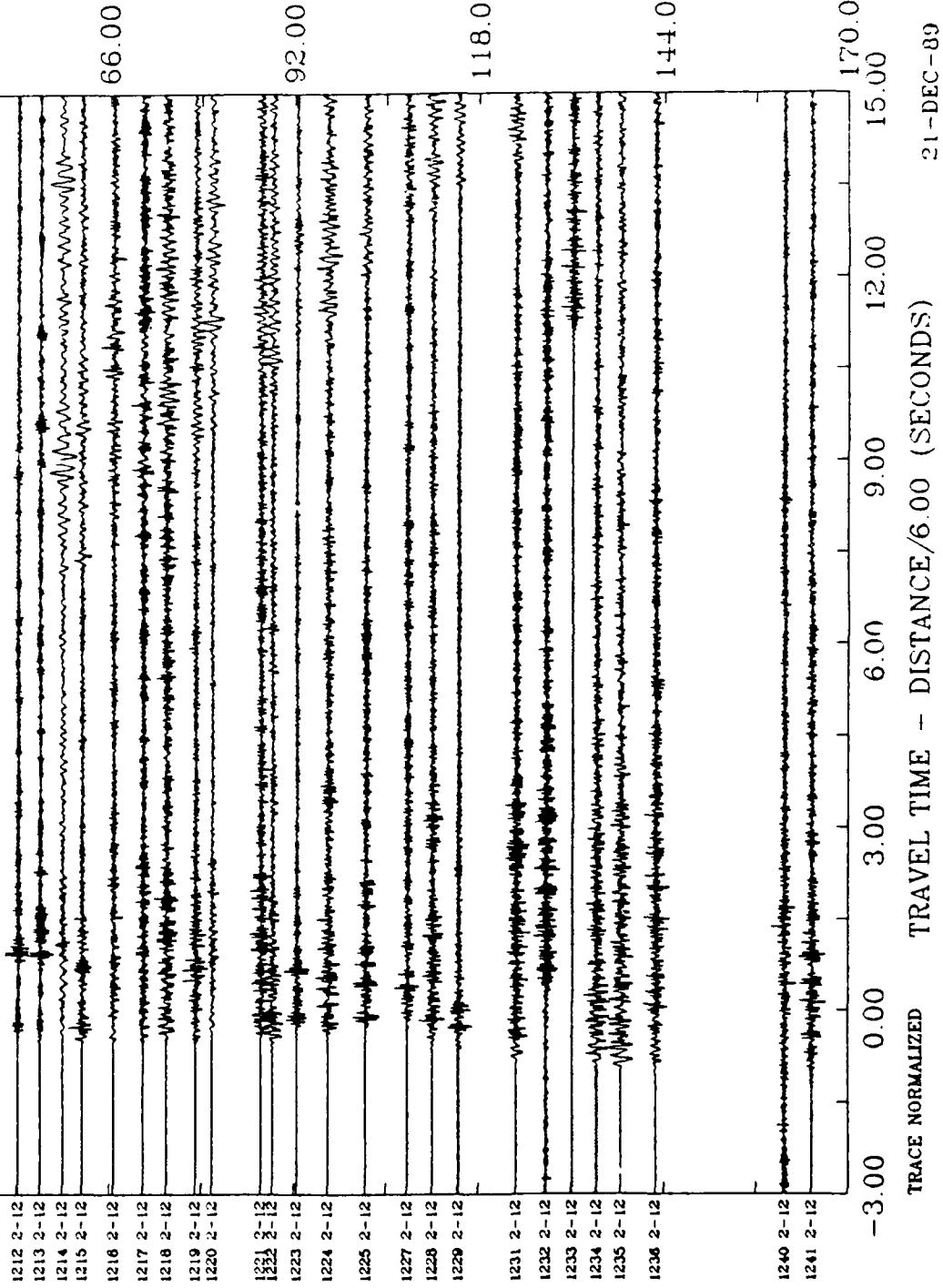
28-DEC-89

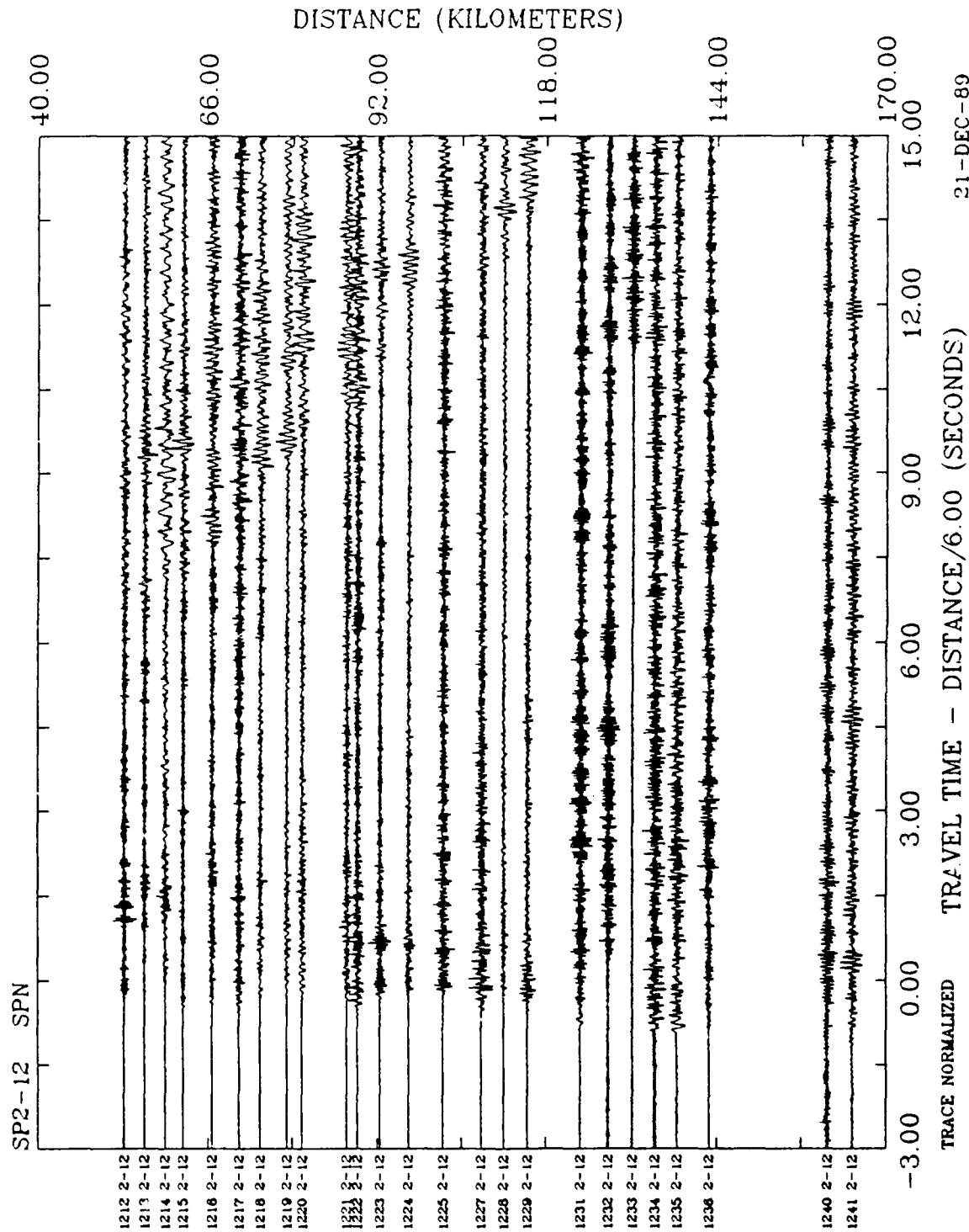
SP2-11 SPE

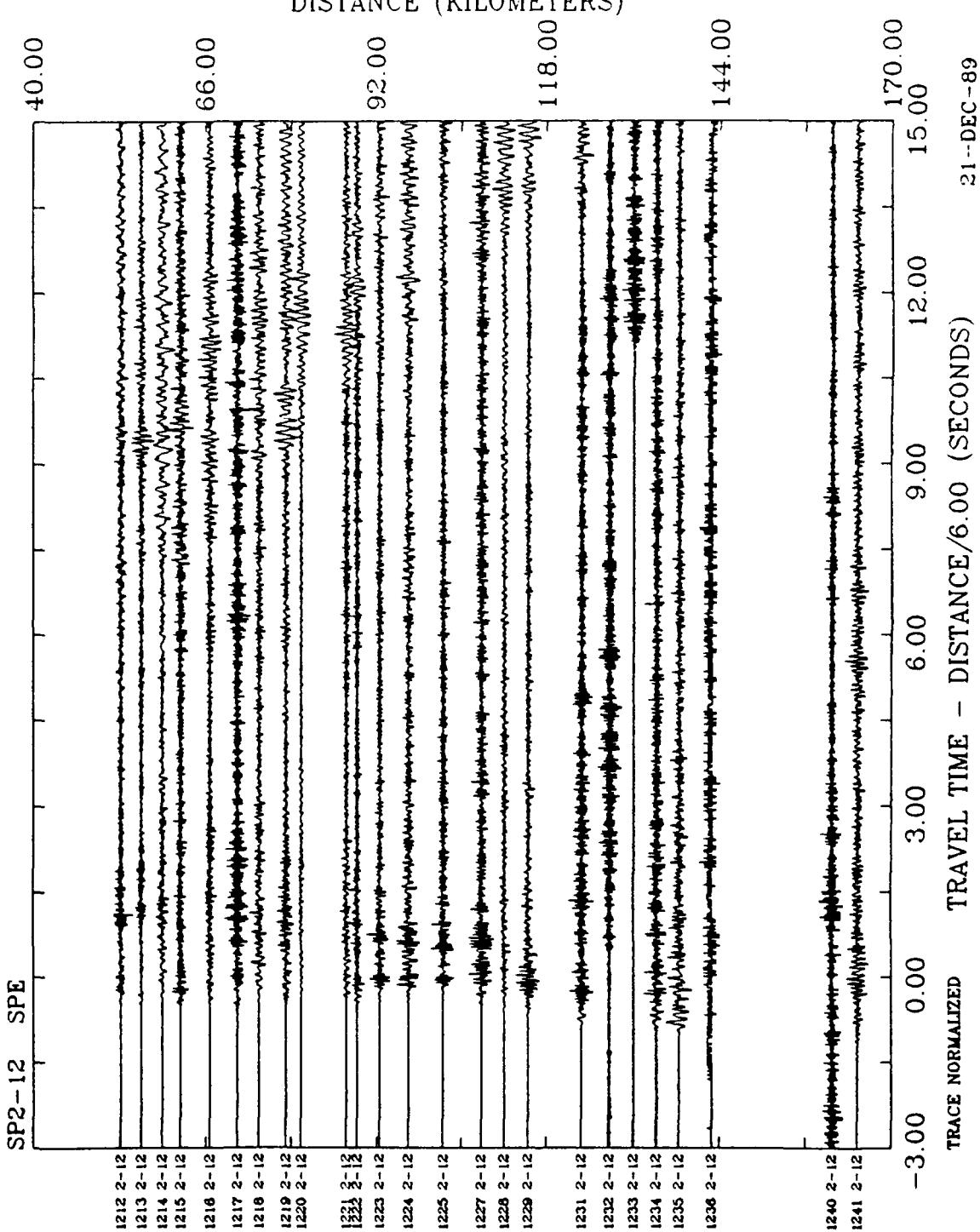


SP2-12 SPZ

DISTANCE (KILOMETERS)







SP2-13 SP2

60.00

1211 2-13  
1212 2-13  
1213 2-13  
1214 2-13  
1215 2-13  
1216 2-13  
1217 2-13  
1218 2-13  
1219 2-13  
1220 2-13

DISTANCE (KILOMETERS)

88.00

116.00

144.00

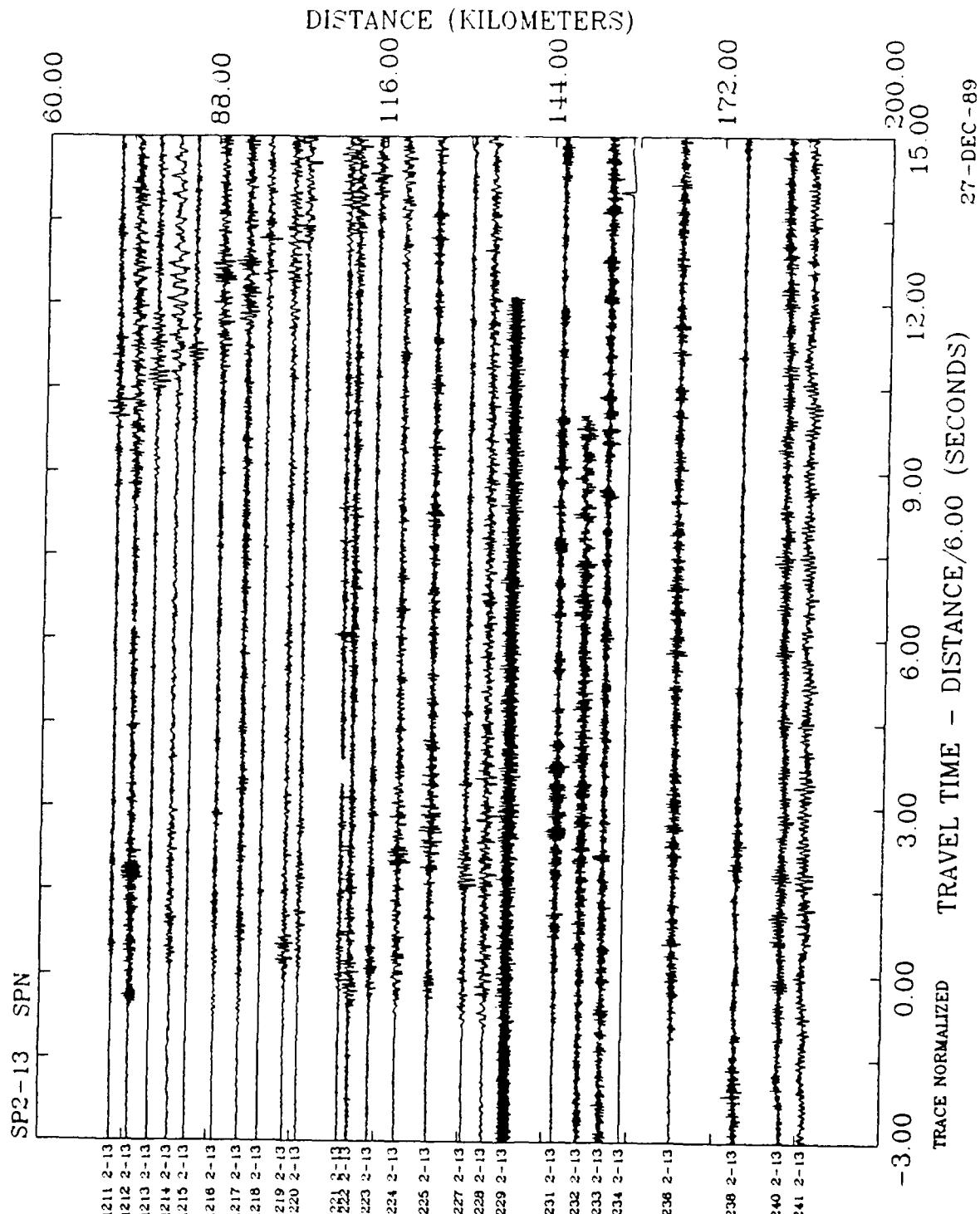
172.00

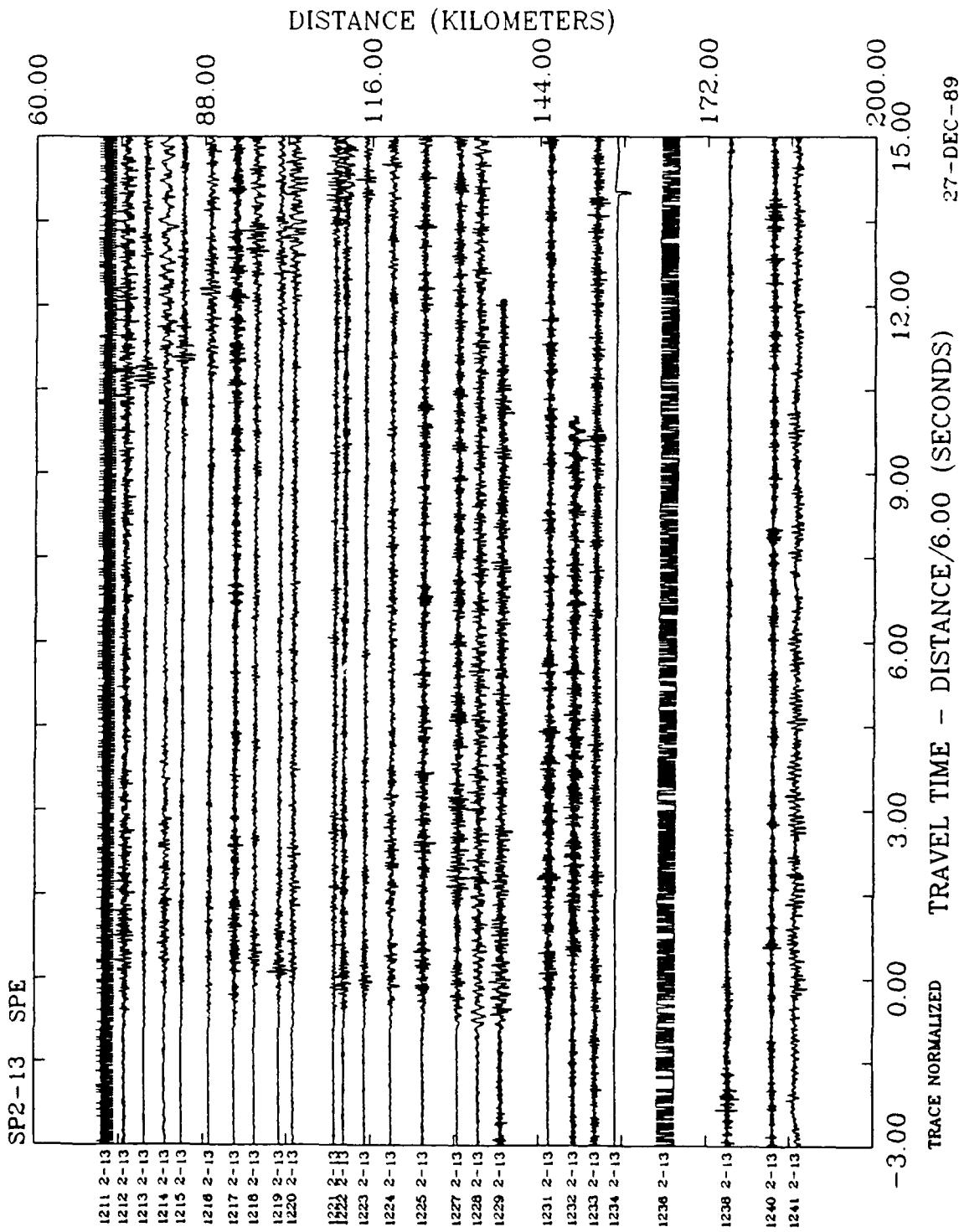
200.00

TRACE NORMALIZED

TRAVEL TIME - DISTANCE/6.00 (SECONDS)

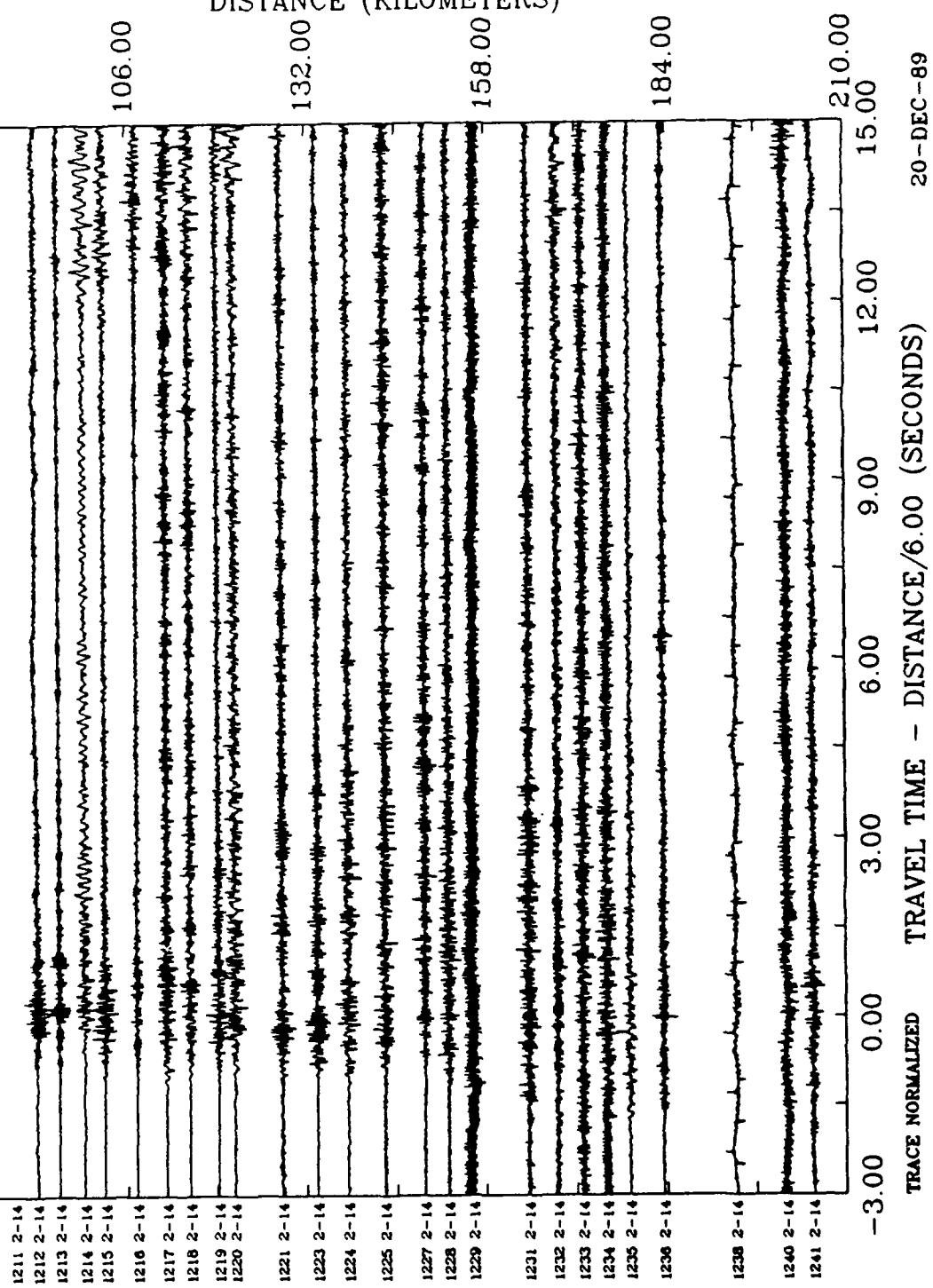
27-DEC-89

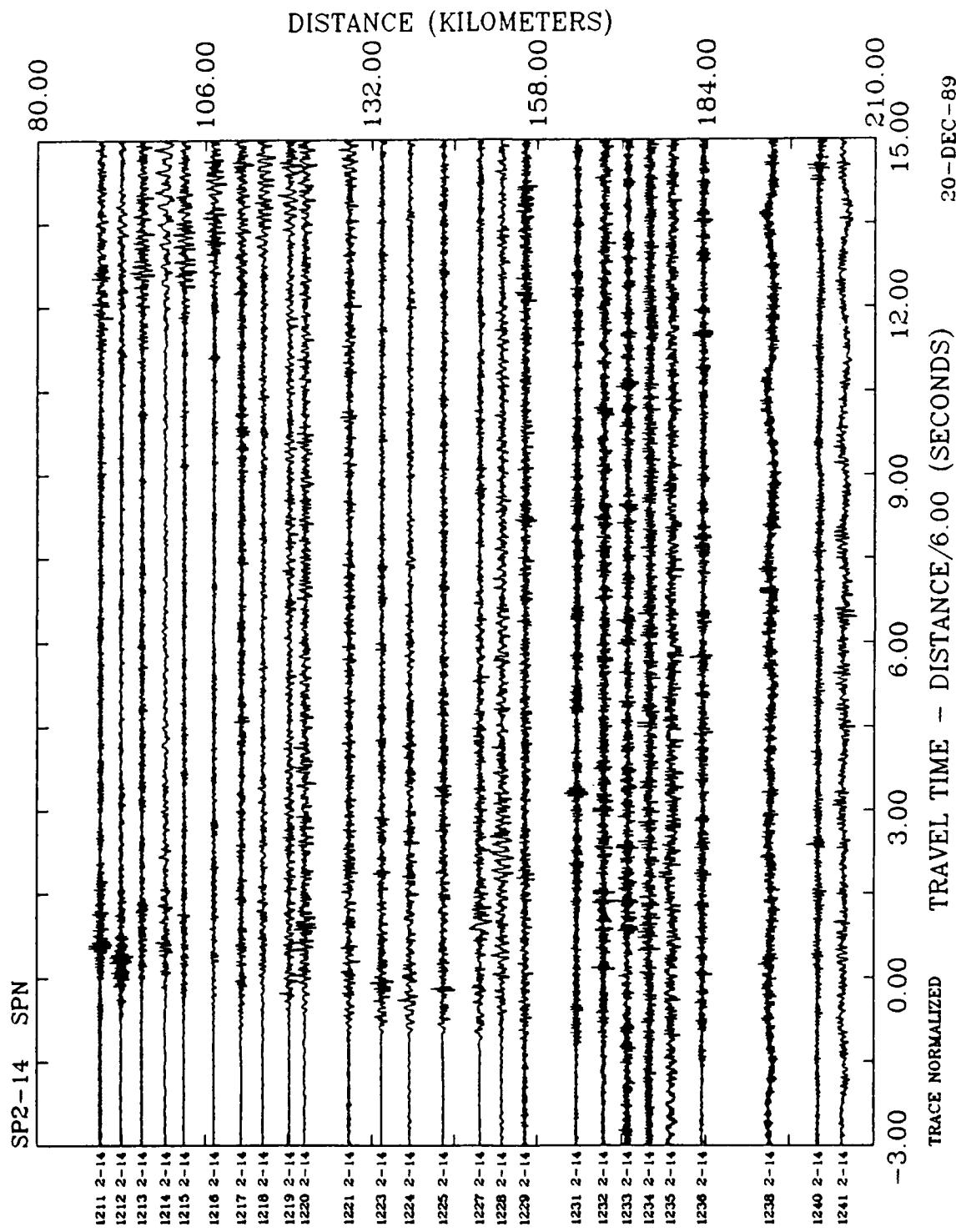




SP2-14 SPZ

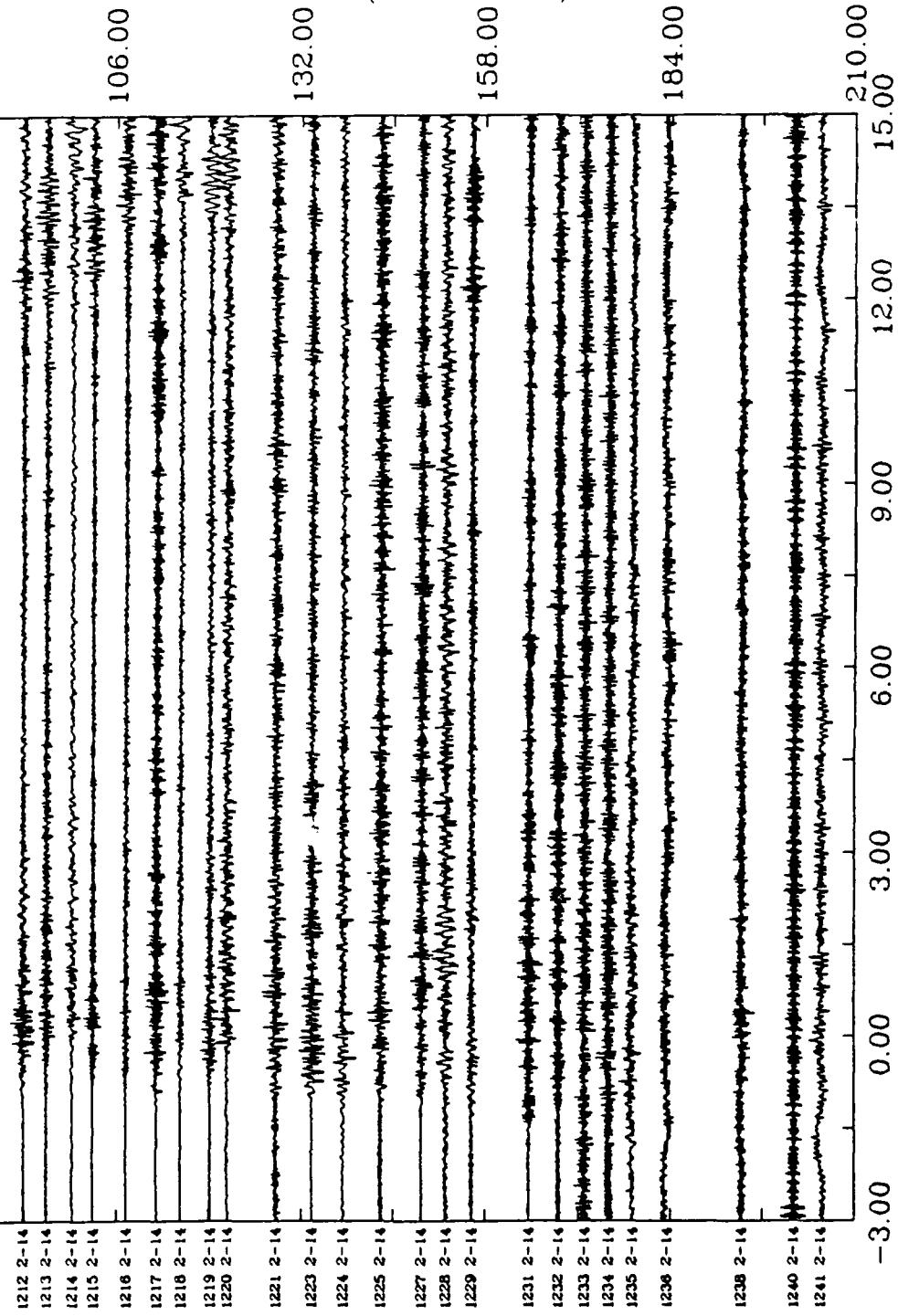
80.00

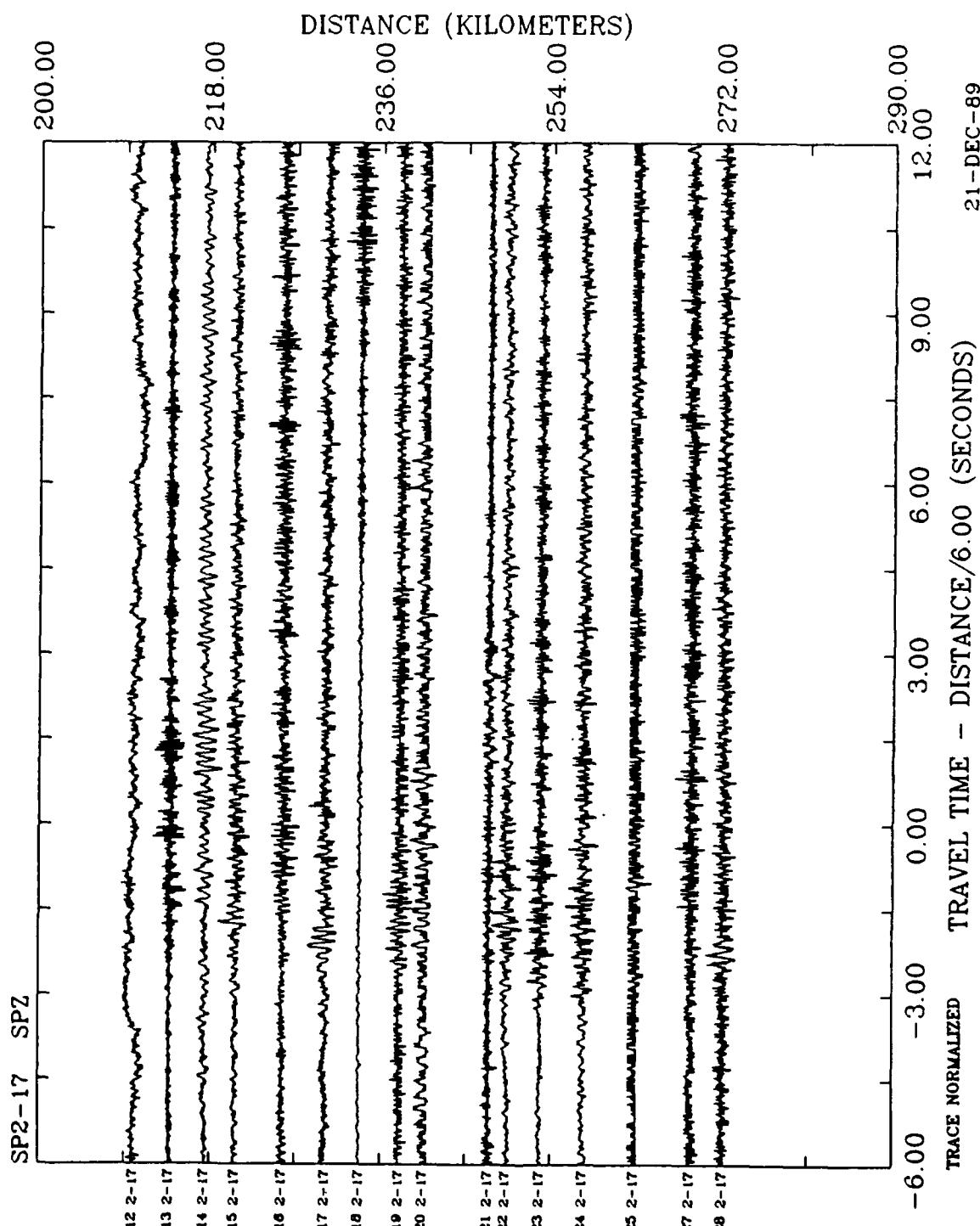




SP2-14 SPE

80.00





SP2-17 SPN

200.00

1212 2-17  
1213 2-17  
1214 2-17  
1215 2-17  
1216 2-17  
1217 2-17  
1218 2-17  
1219 2-17  
1220 2-17

DISTANCE (KILOMETERS)

218.00

236.00

254.00

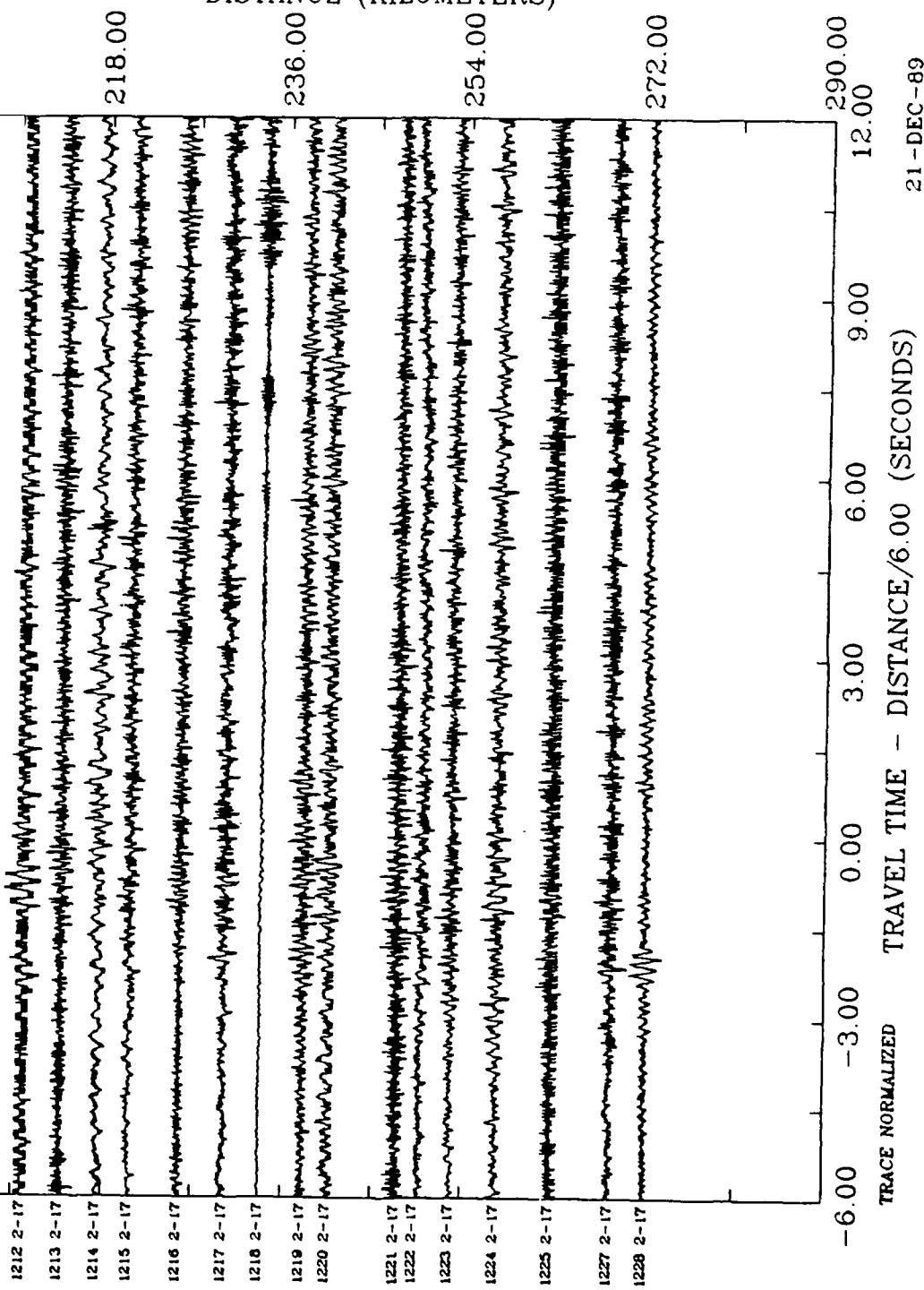
272.00

290.00

TRACE NORMALIZED TRAVEL TIME - DISTANCE/6.00 (SECONDS)

21-DEC-89

SP2-17 SPE 200.00



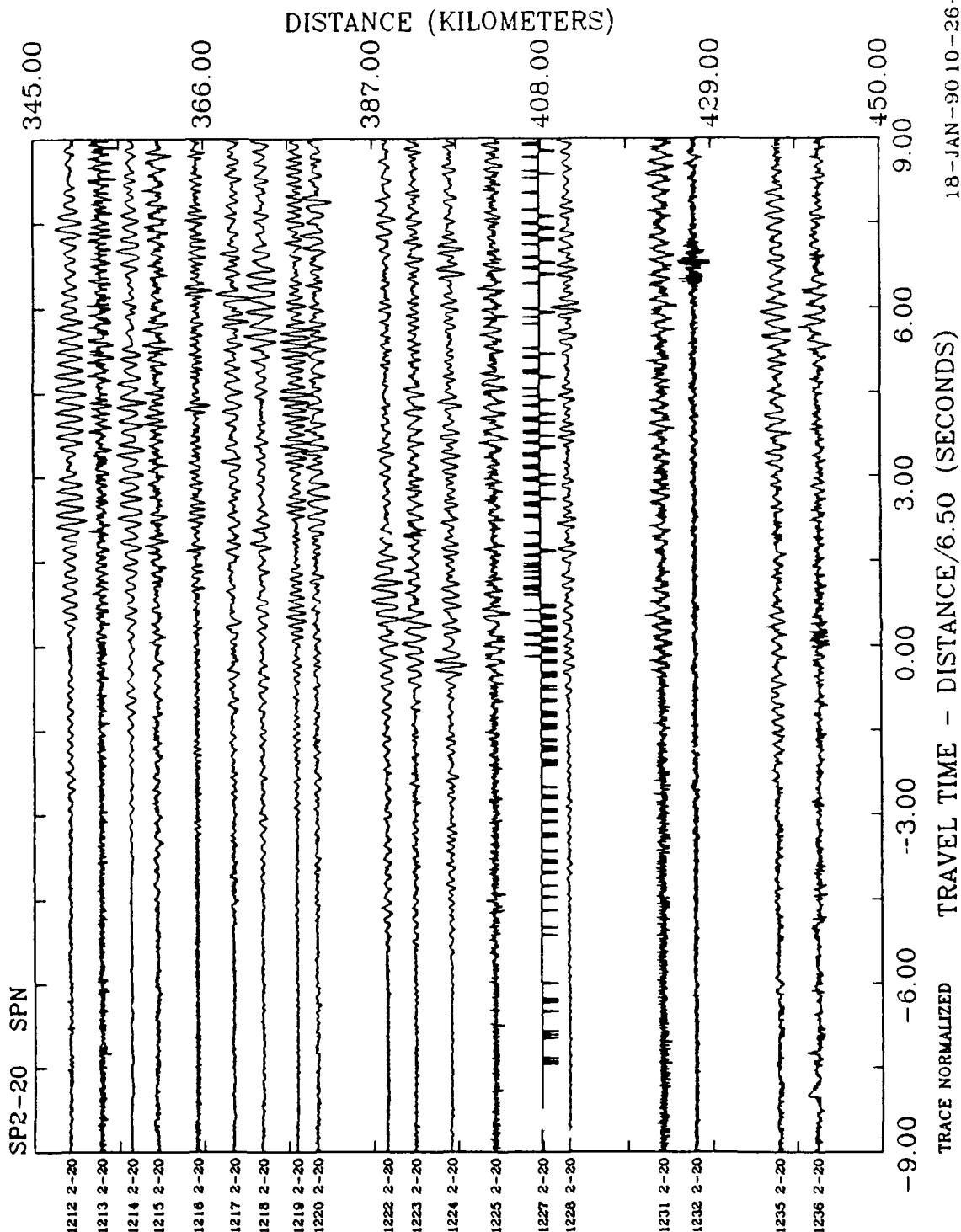
SP2-20 SPZ 345.00

1213 2-20  
1214 2-20  
1215 2-20  
1216 2-20  
1217 2-20  
1218 2-20  
1219 2-20  
1220 2-20

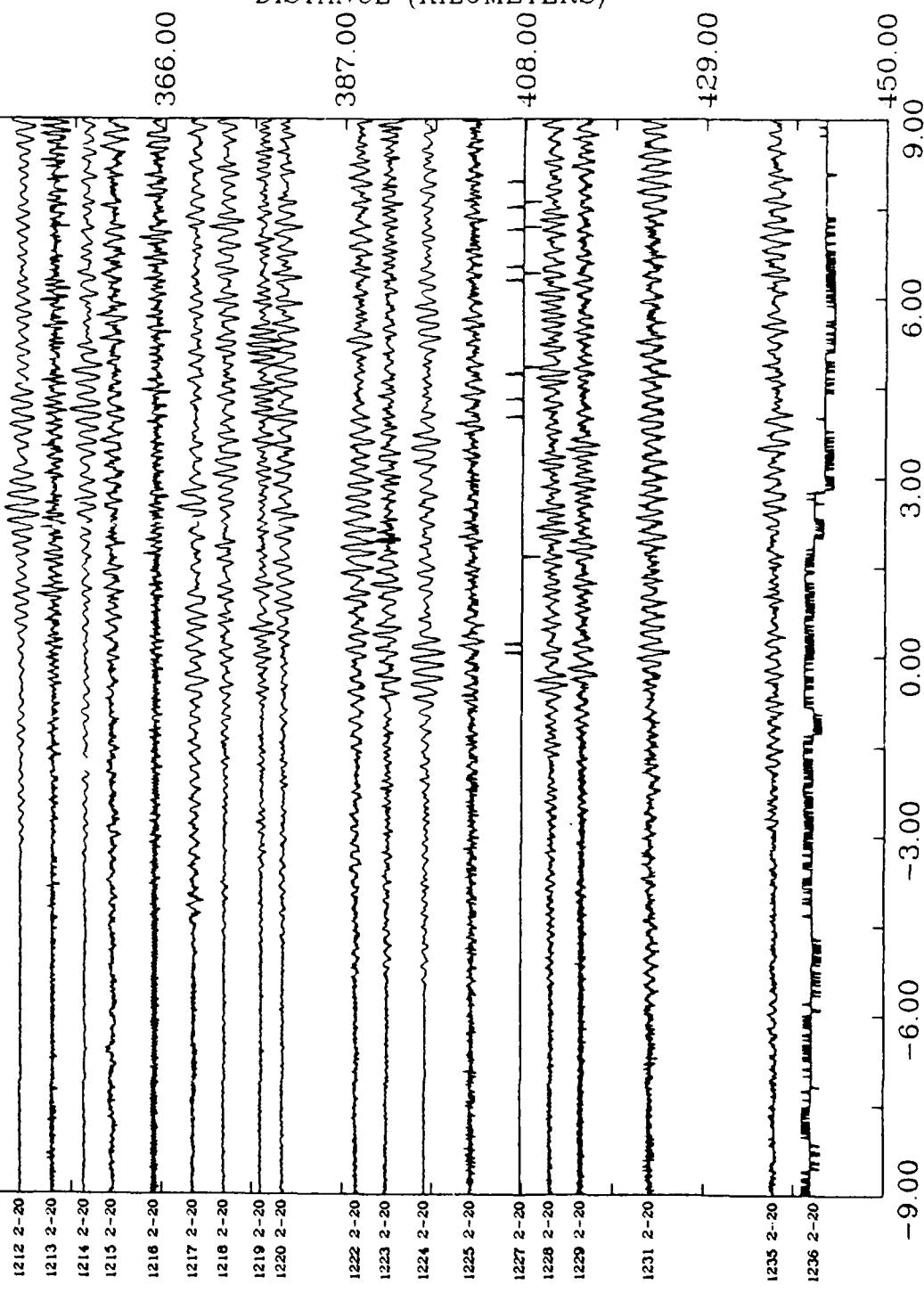
DISTANCE (KILOMETERS)

366.00  
387.00  
408.00  
429.00  
450.00

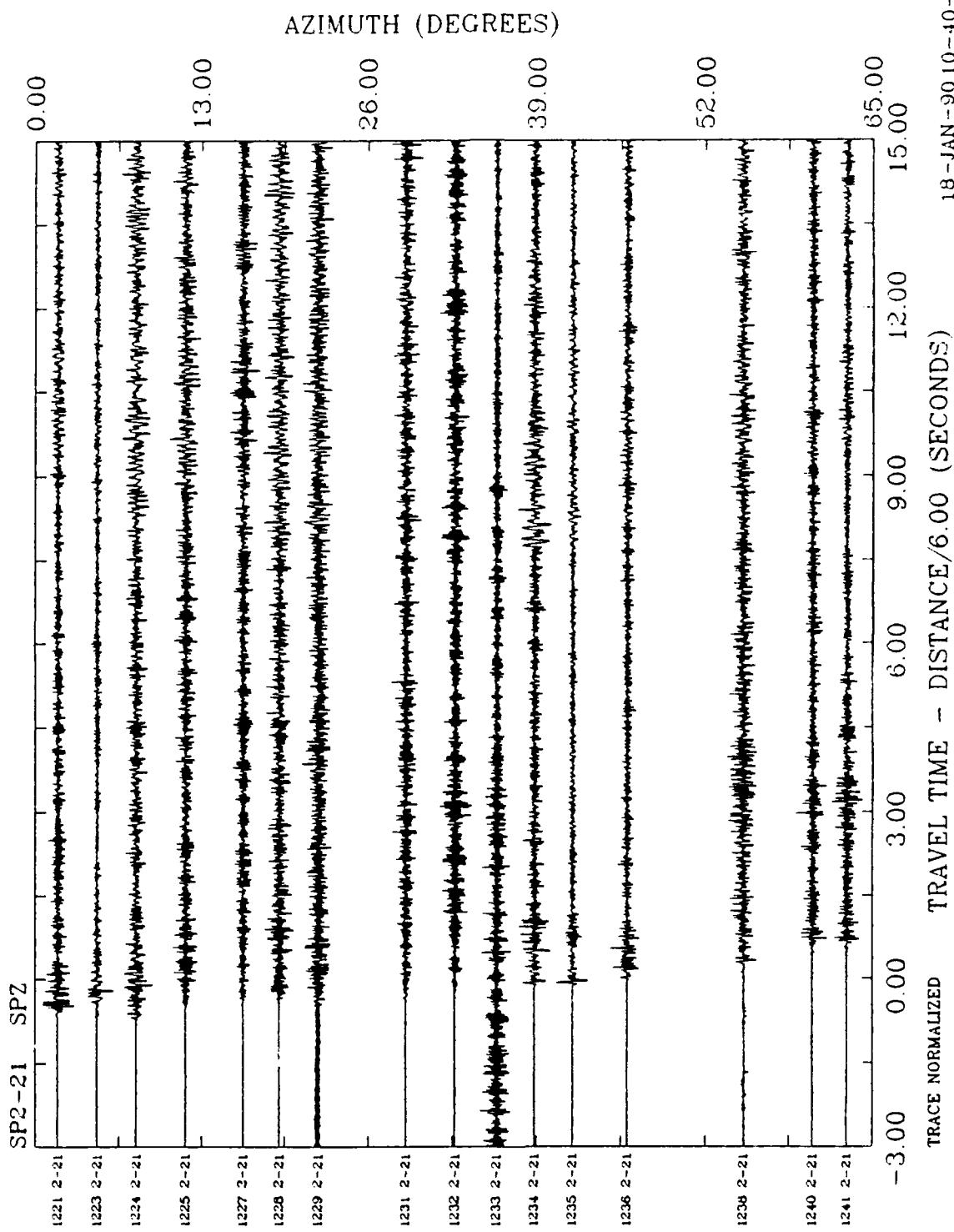
TRACE NORMALIZED TRAVEL TIME - DISTANCE/6.50 (SECONDS) 18-JAN-90 10-24-1

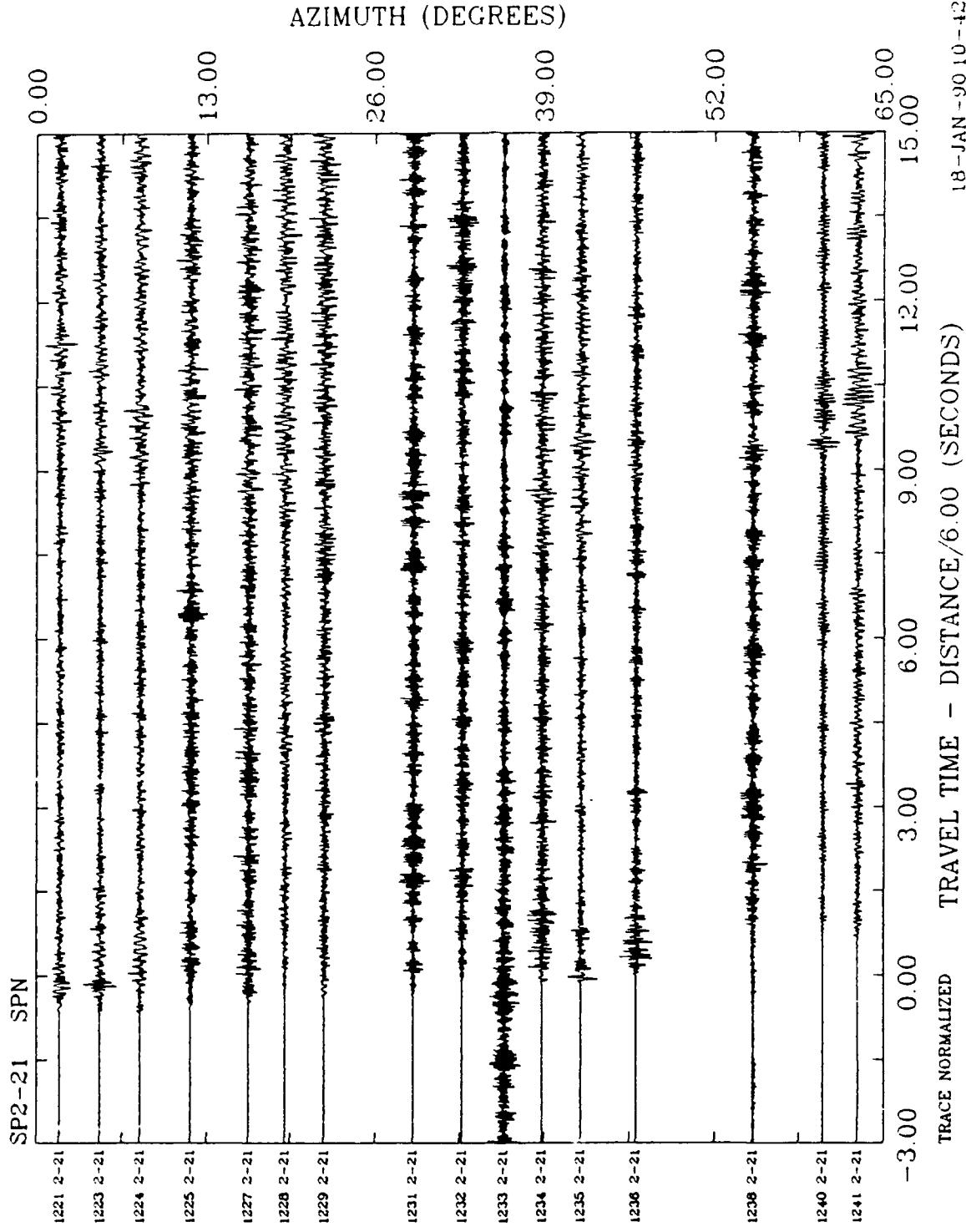


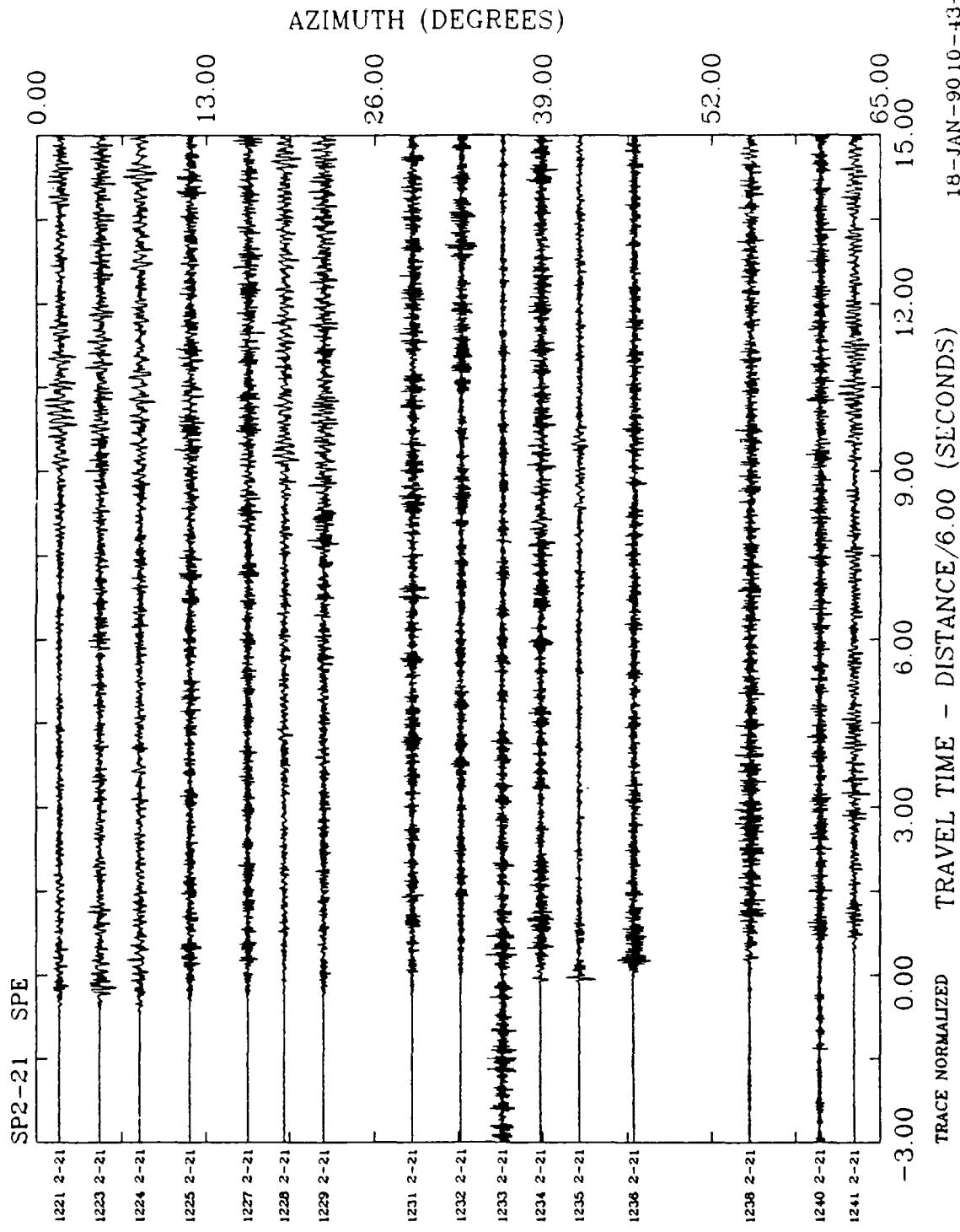
SP2-20 SPE 345.00

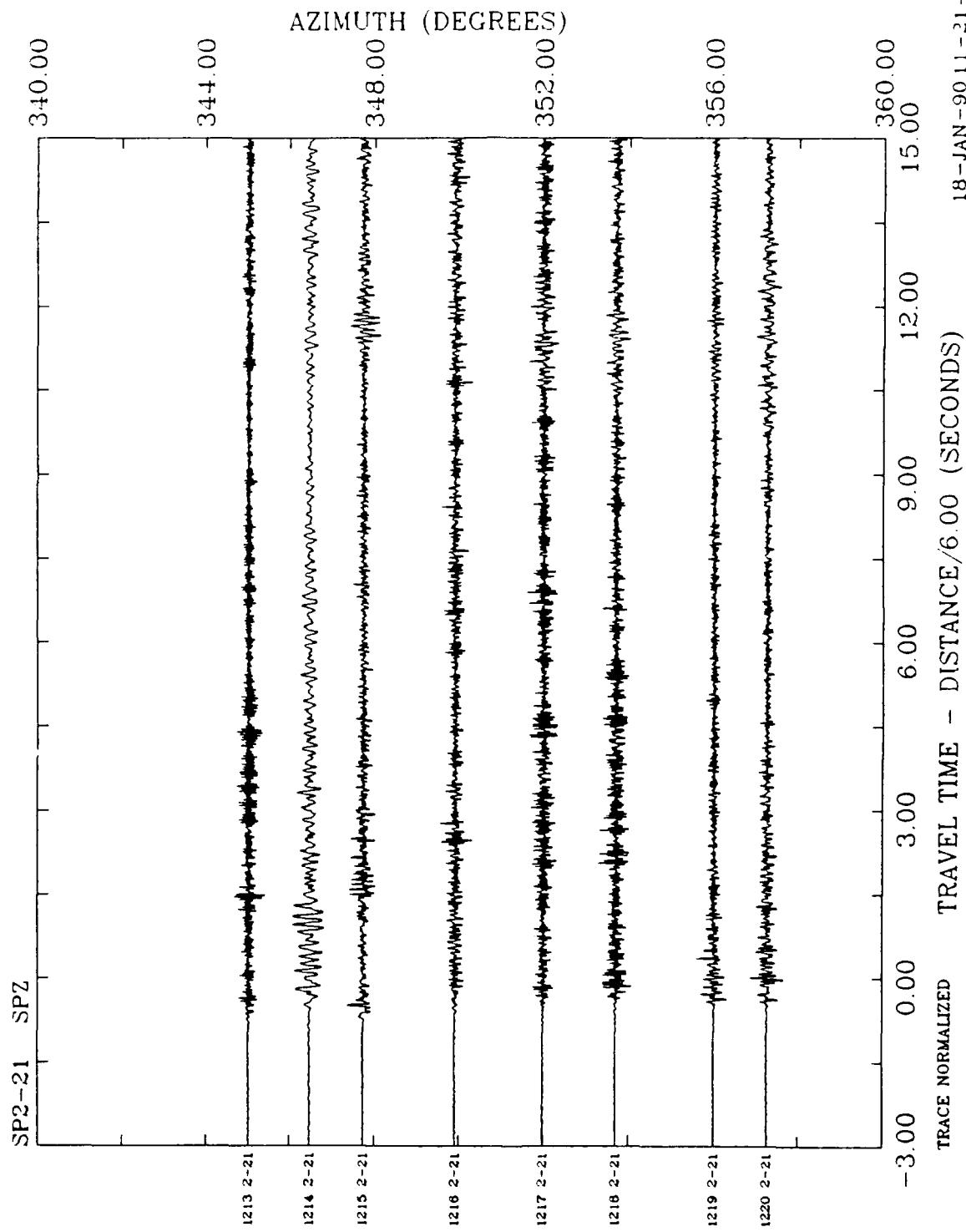


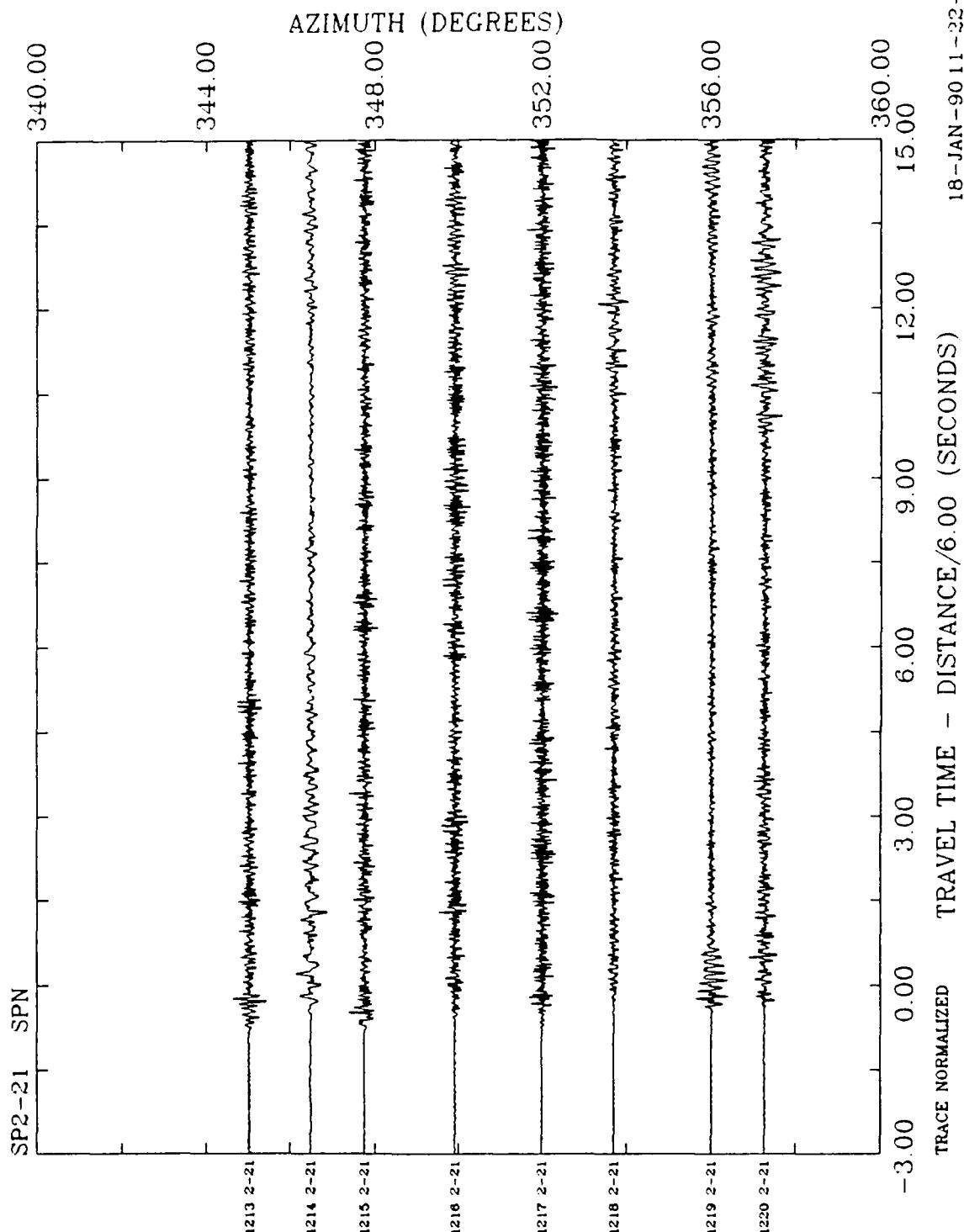
18-JAN-90 10-33-1





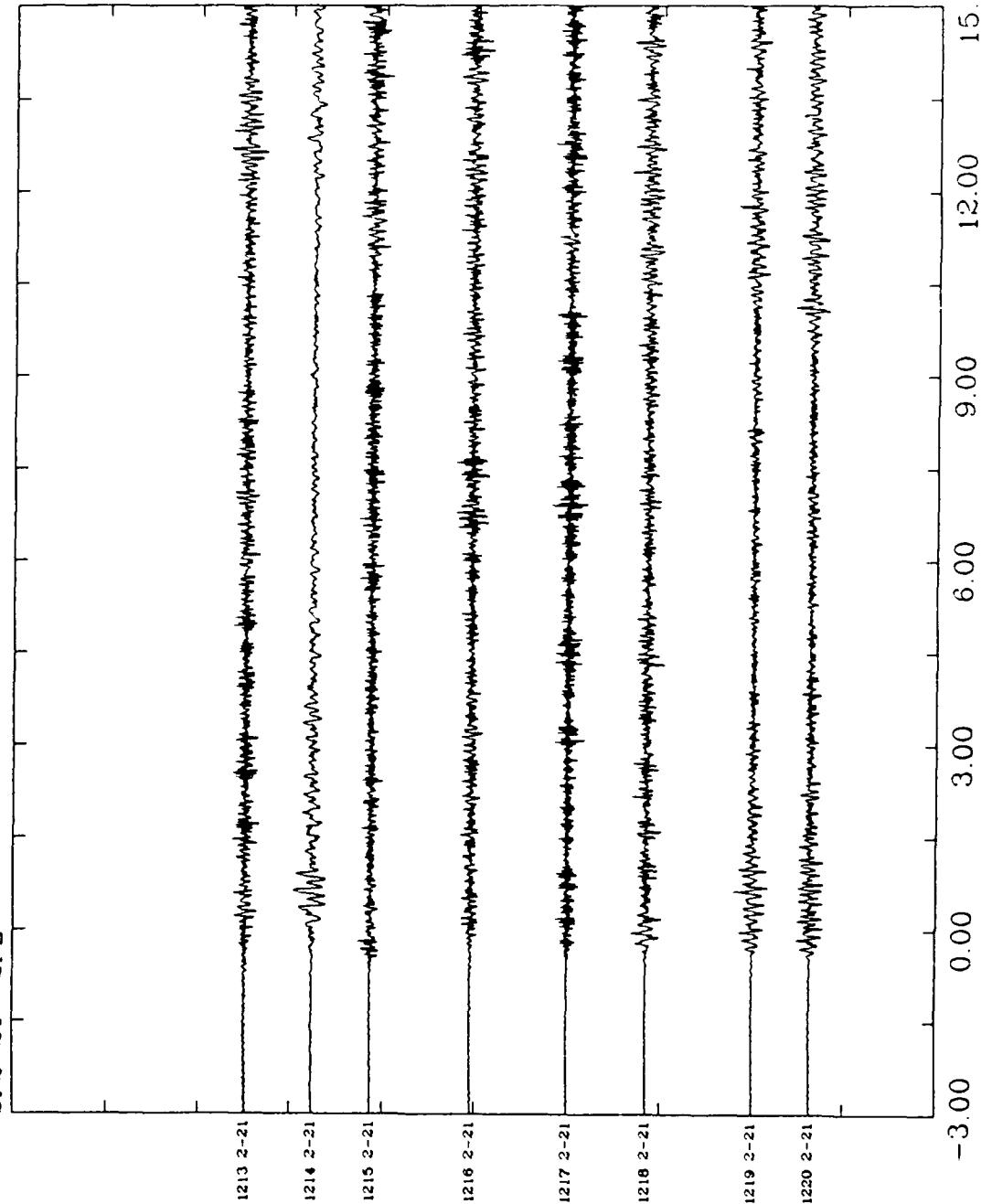




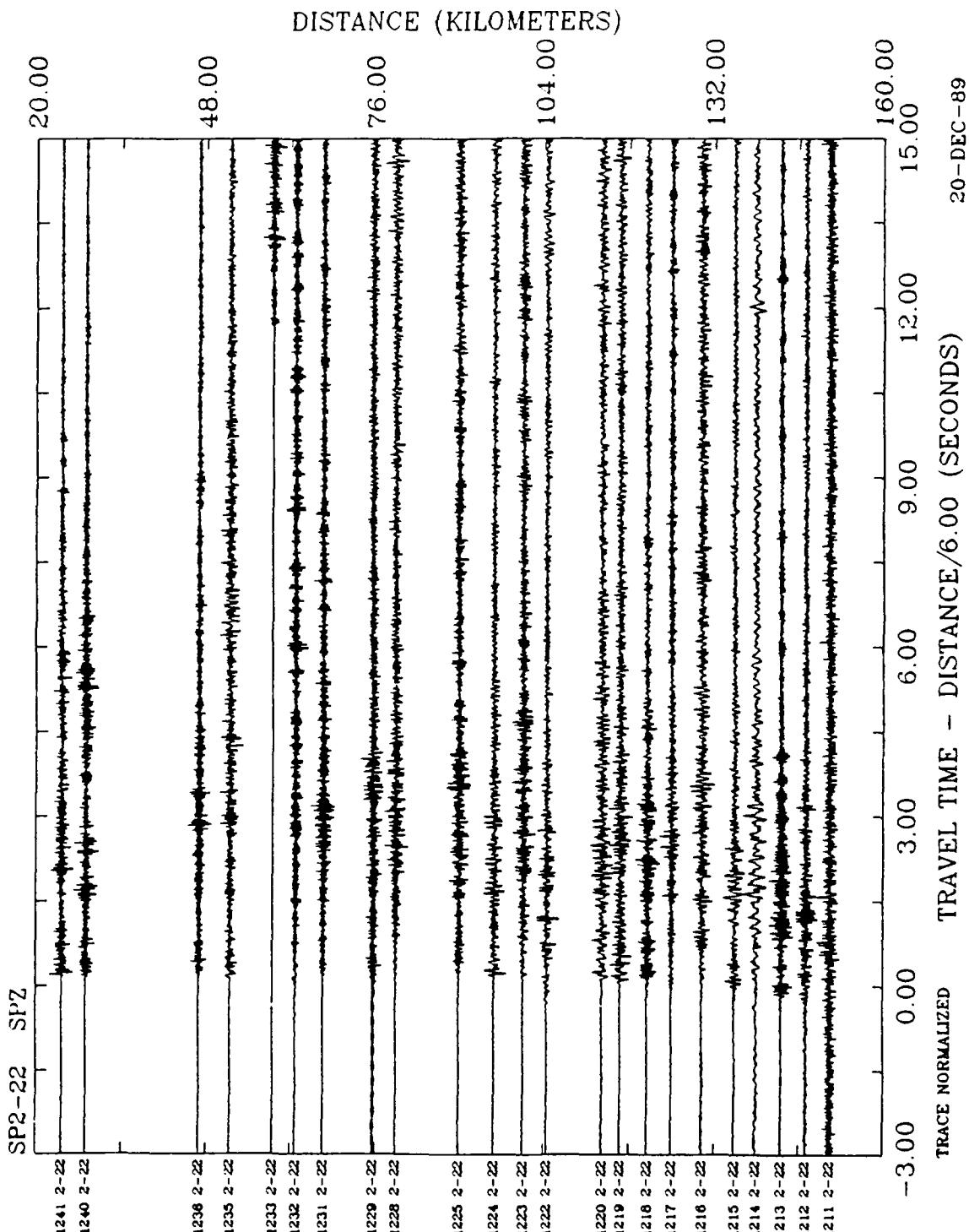


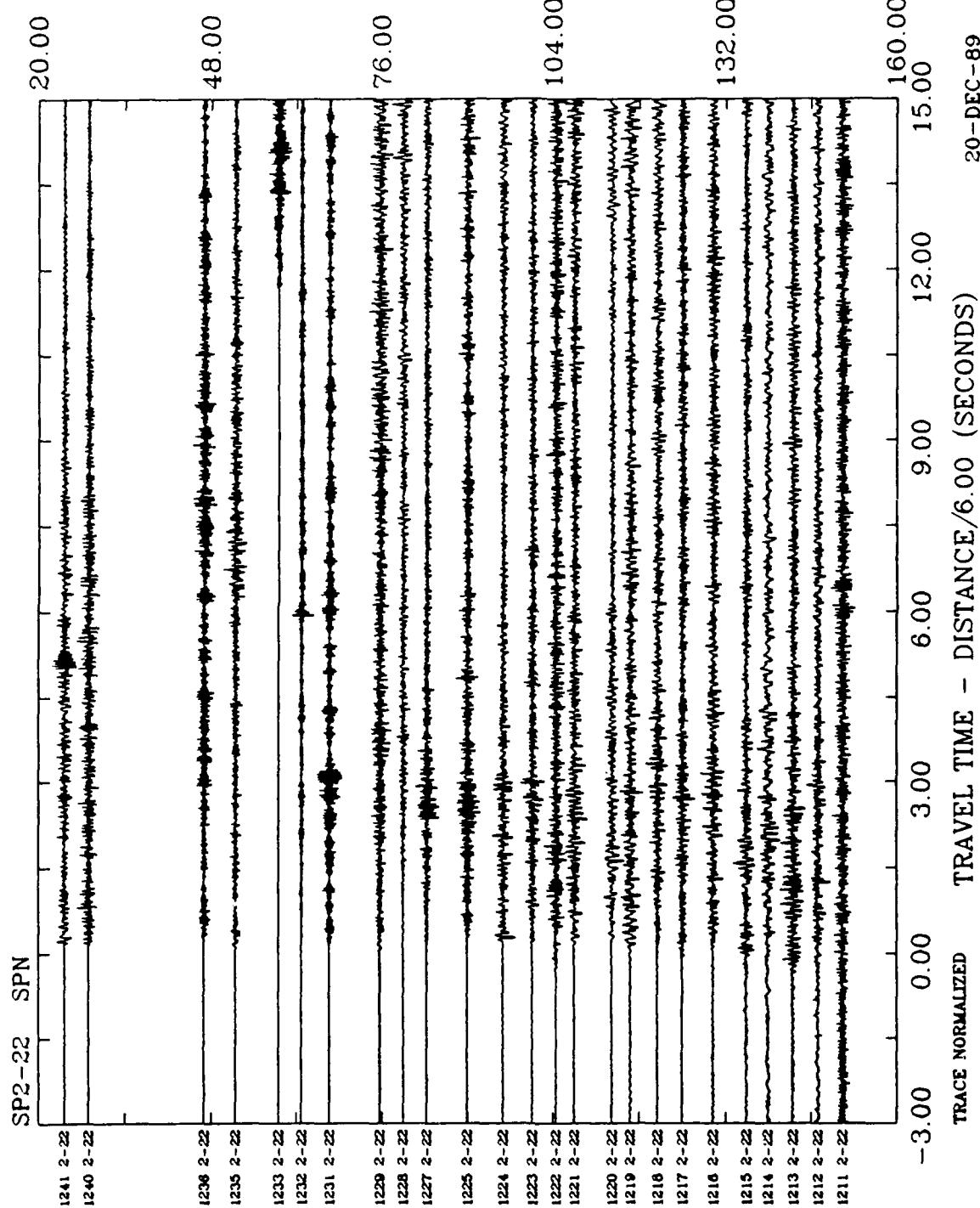
SP2-21 SPE

340.00



18-JAN-90 11-23-1





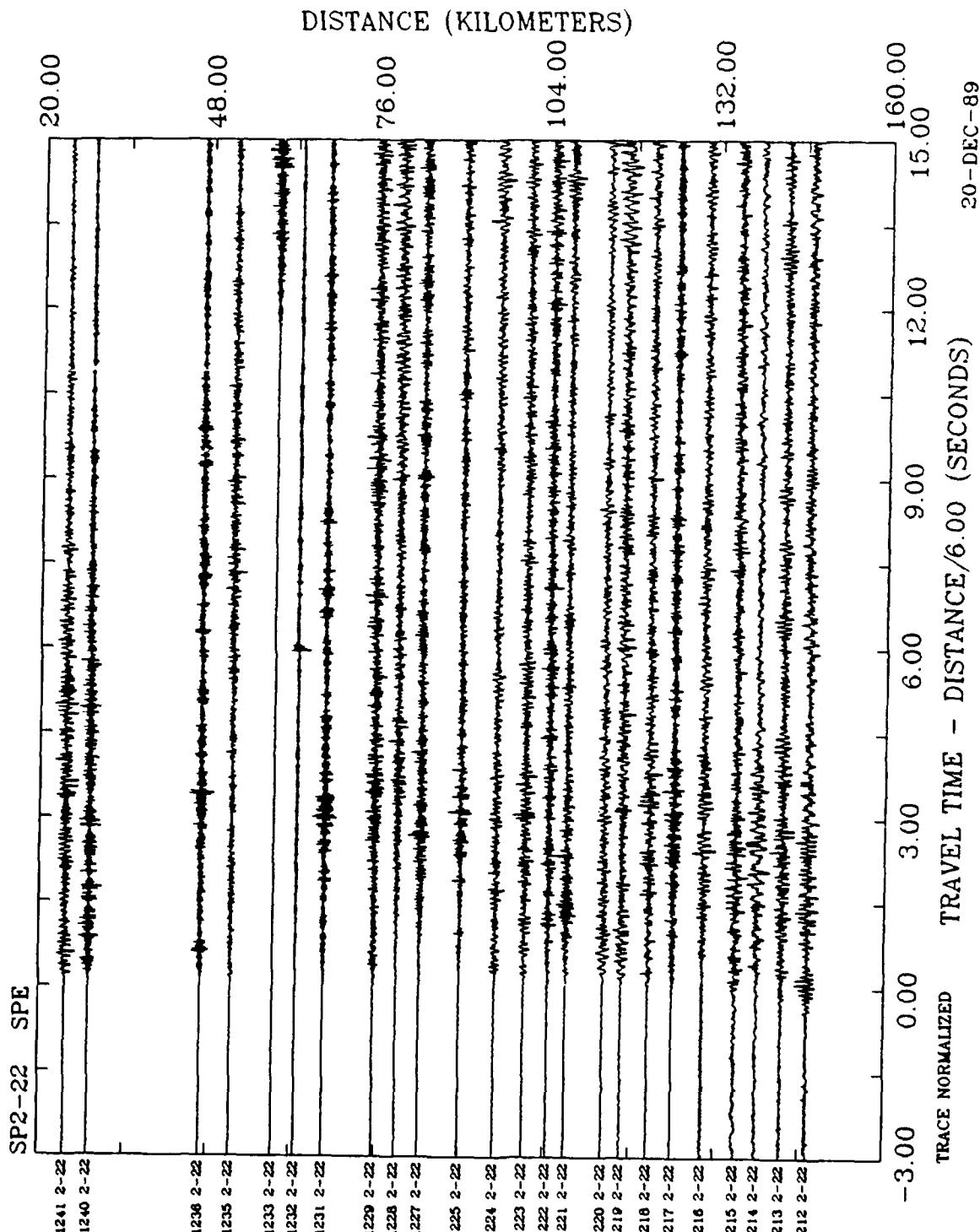
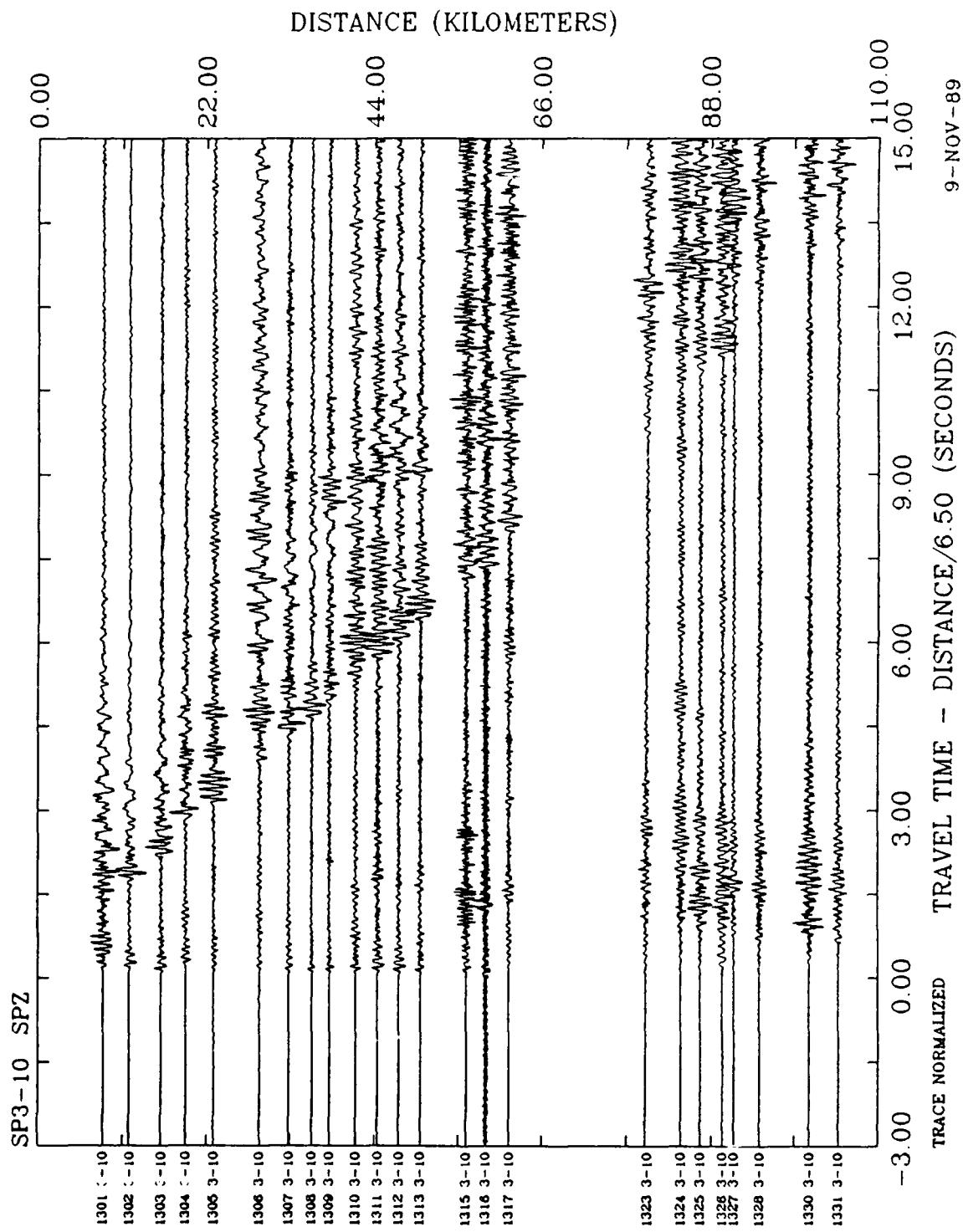
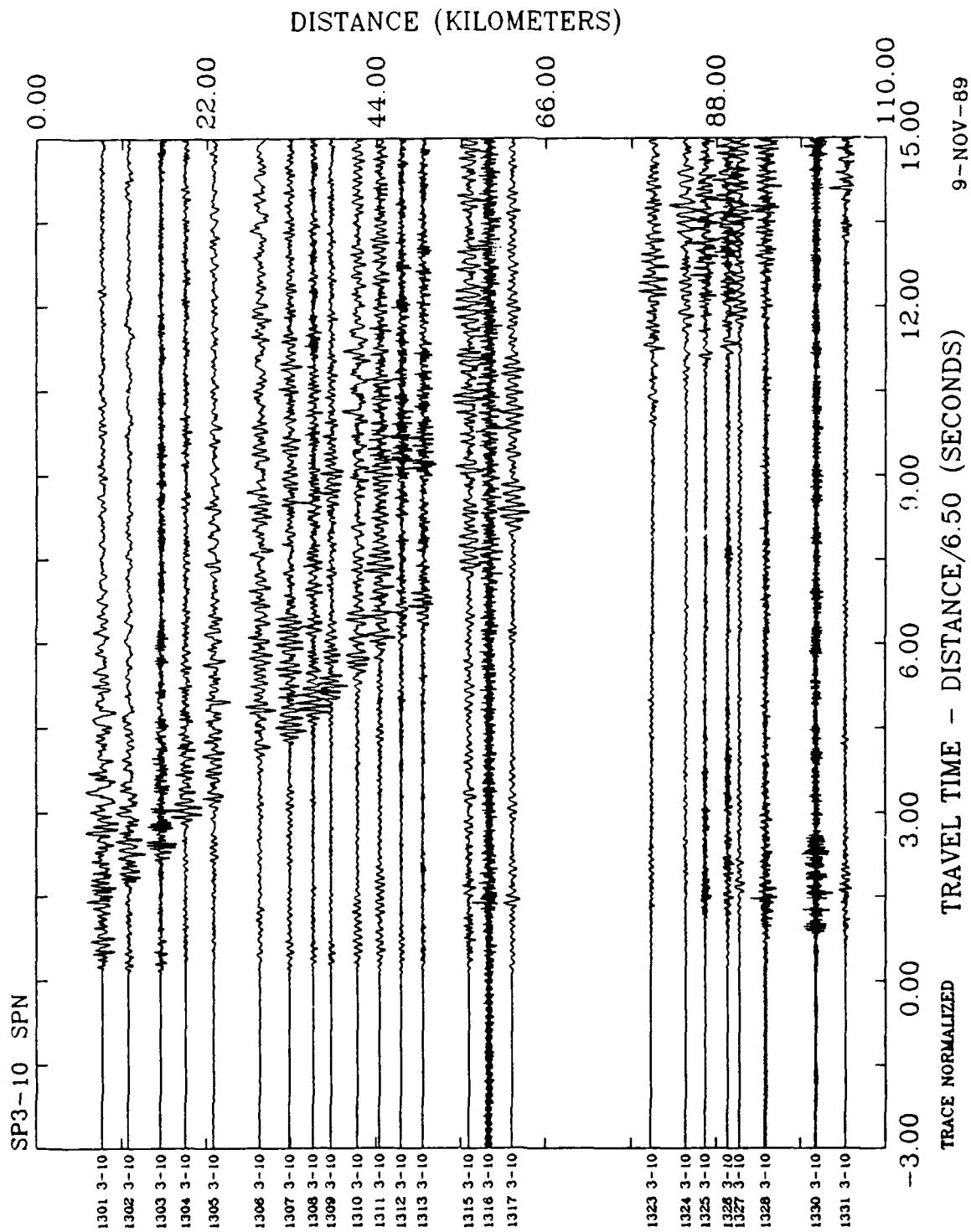


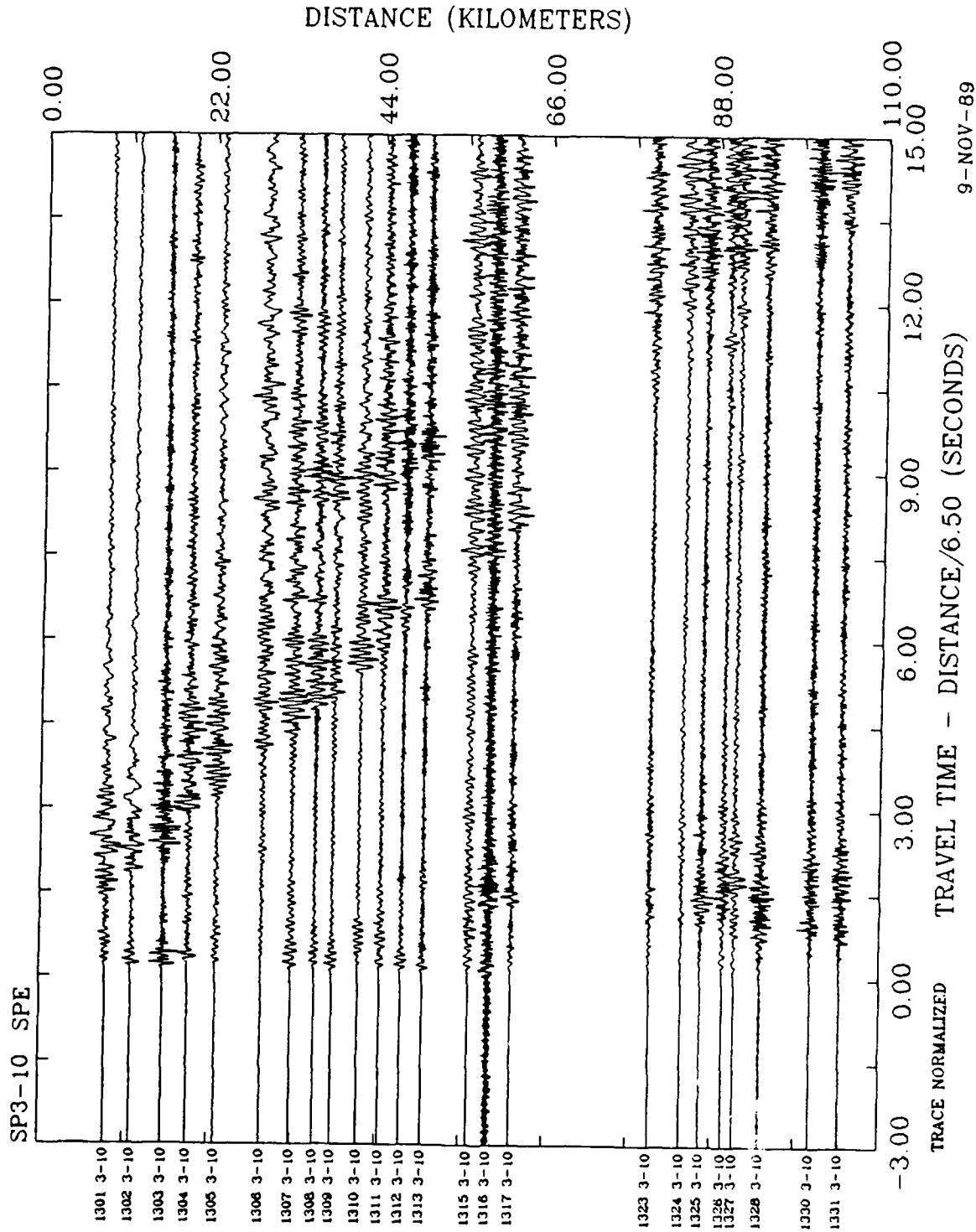
Figure 7.

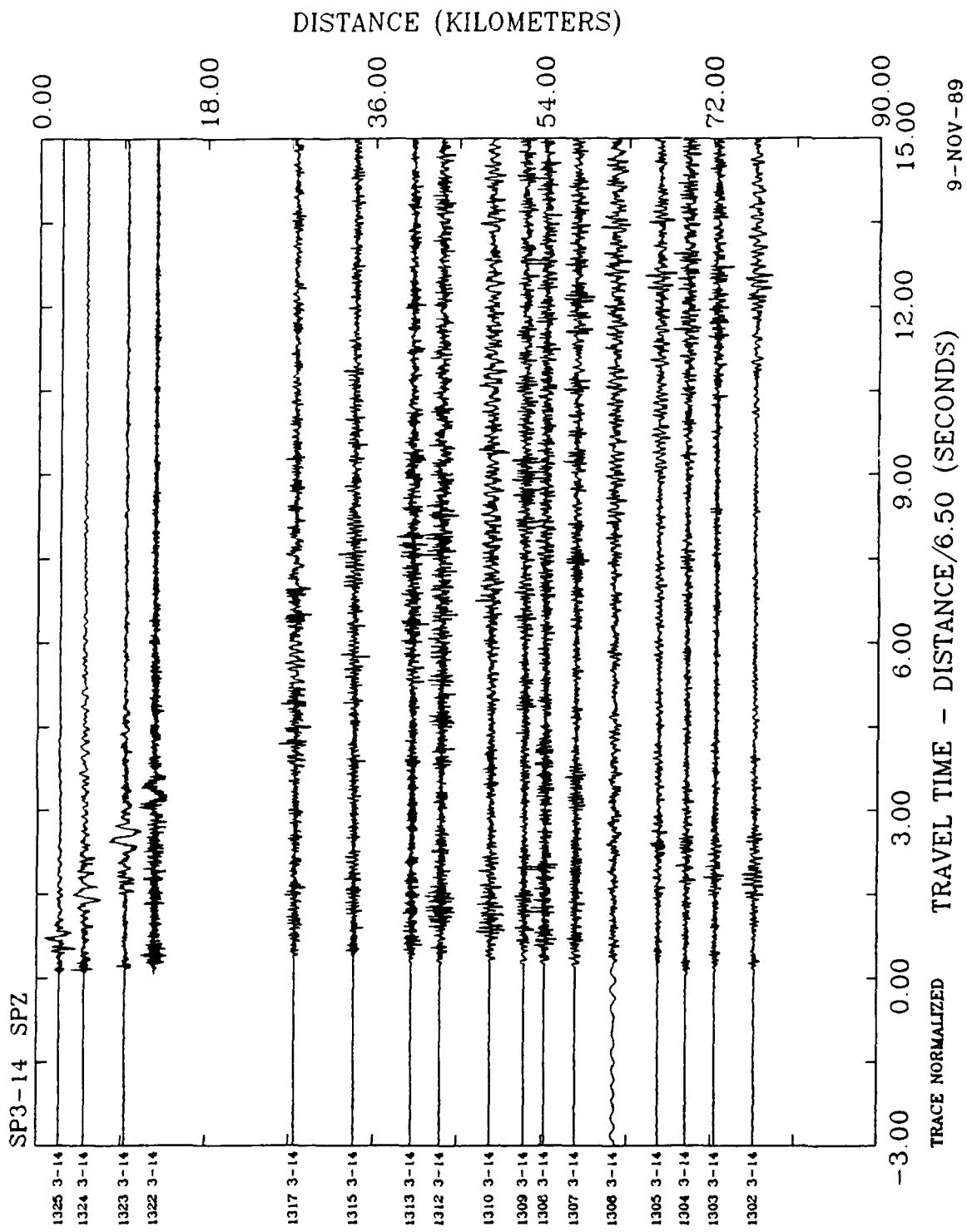
SPZ, SPN, and SPE record sections for Deployment Three,  
\* indicates shot gathers not shown.

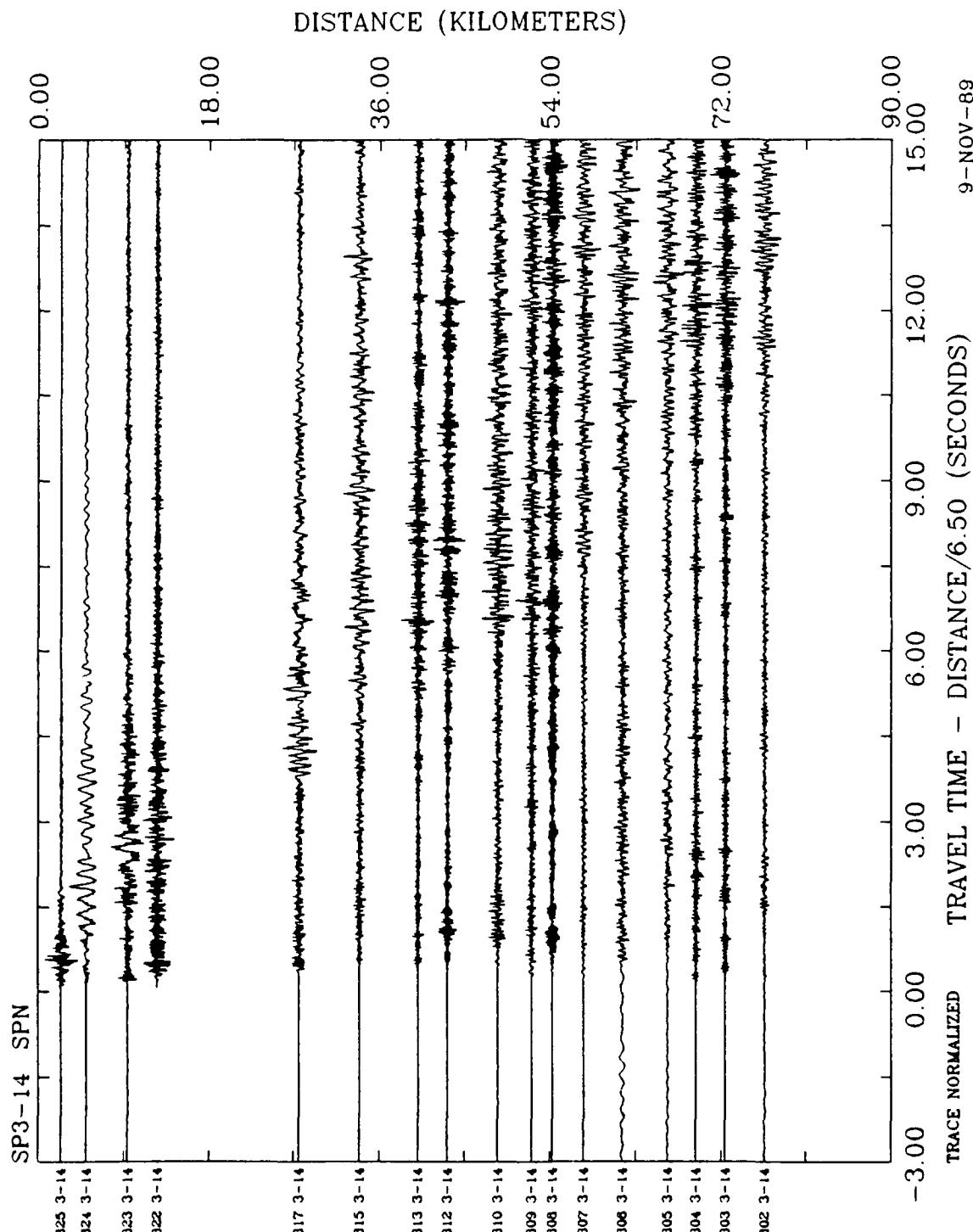
SP3-10  
SP3-14  
SP3-15  
SP3-16  
SP3-18\*  
SP3-19\*  
SP3-20

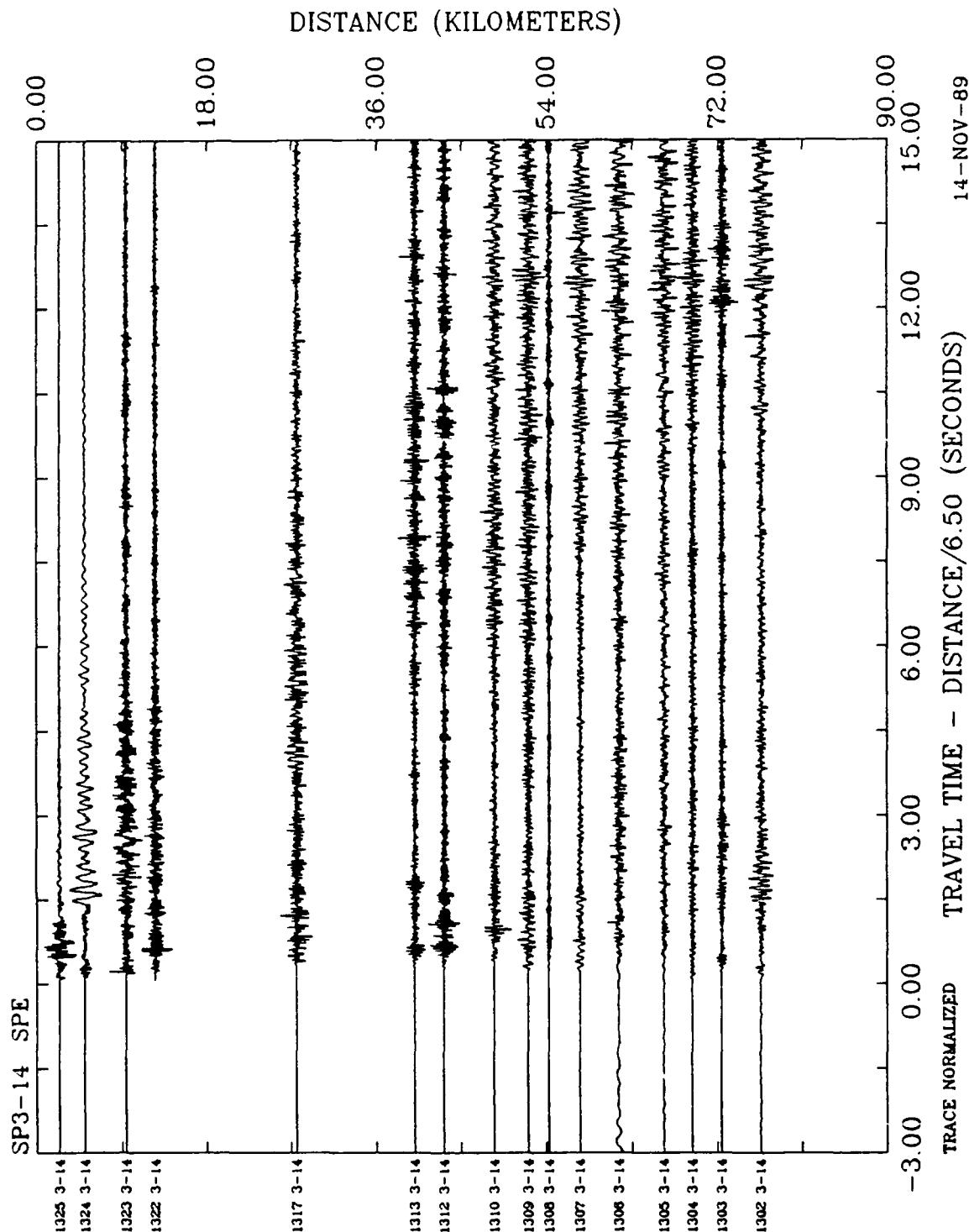


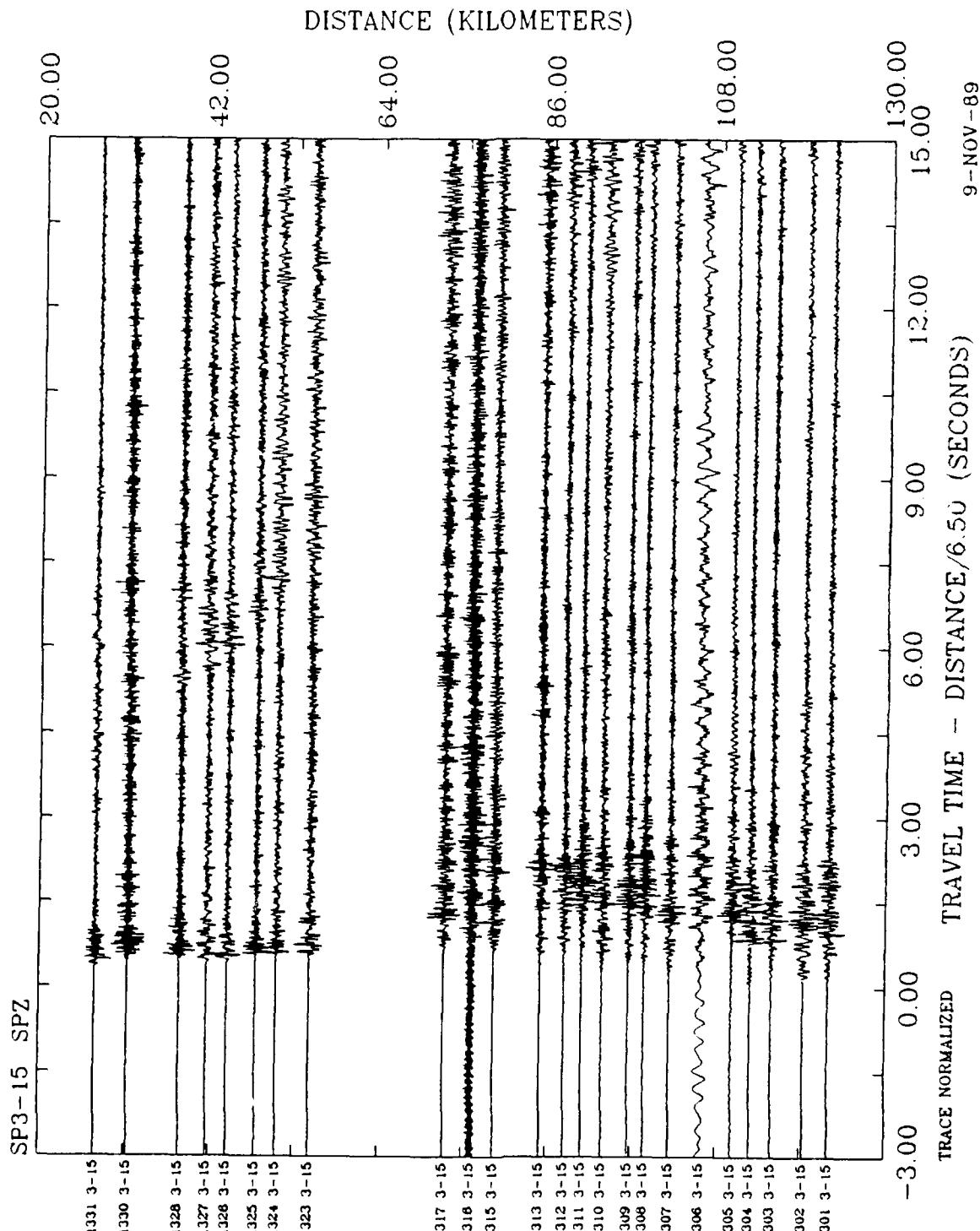


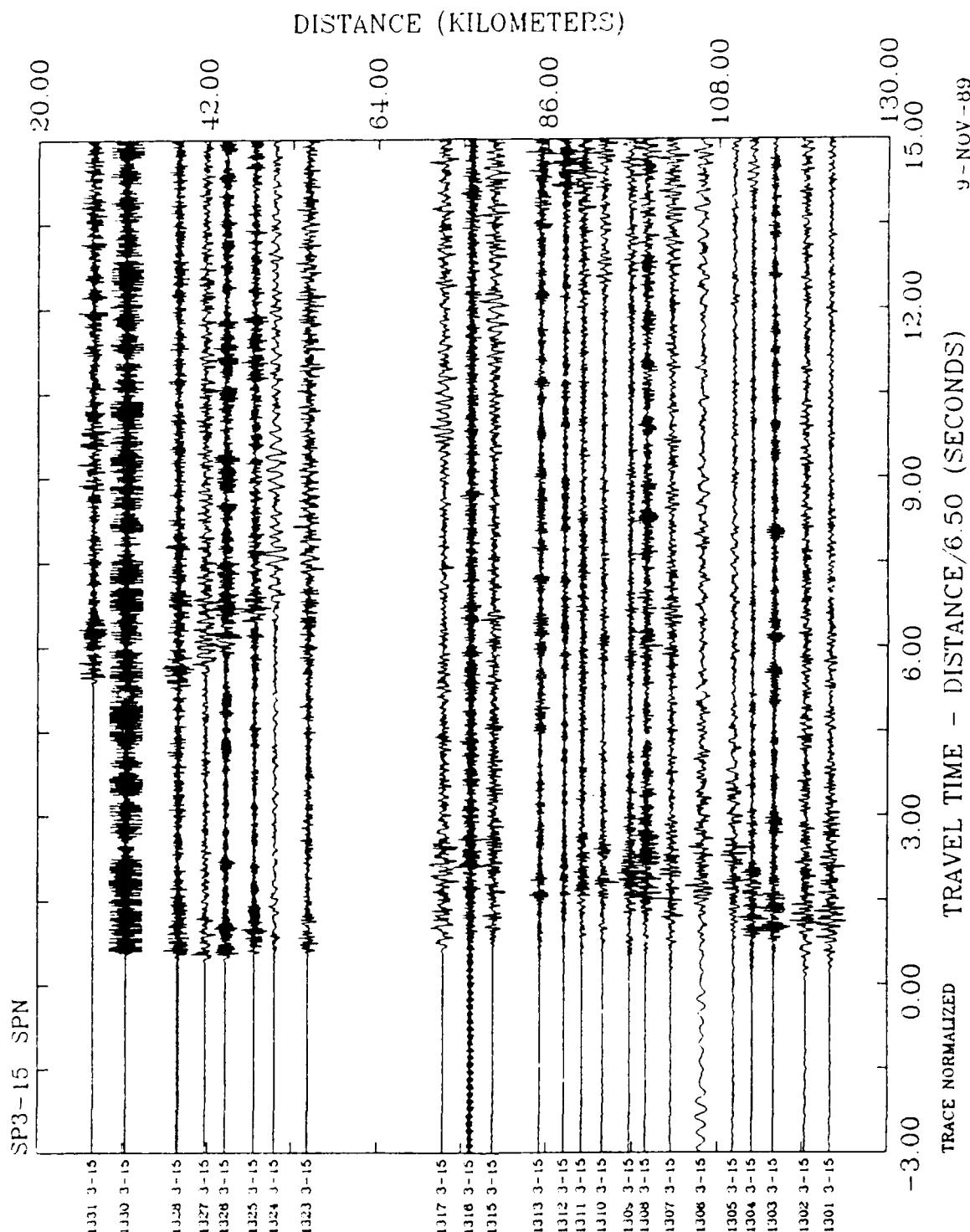


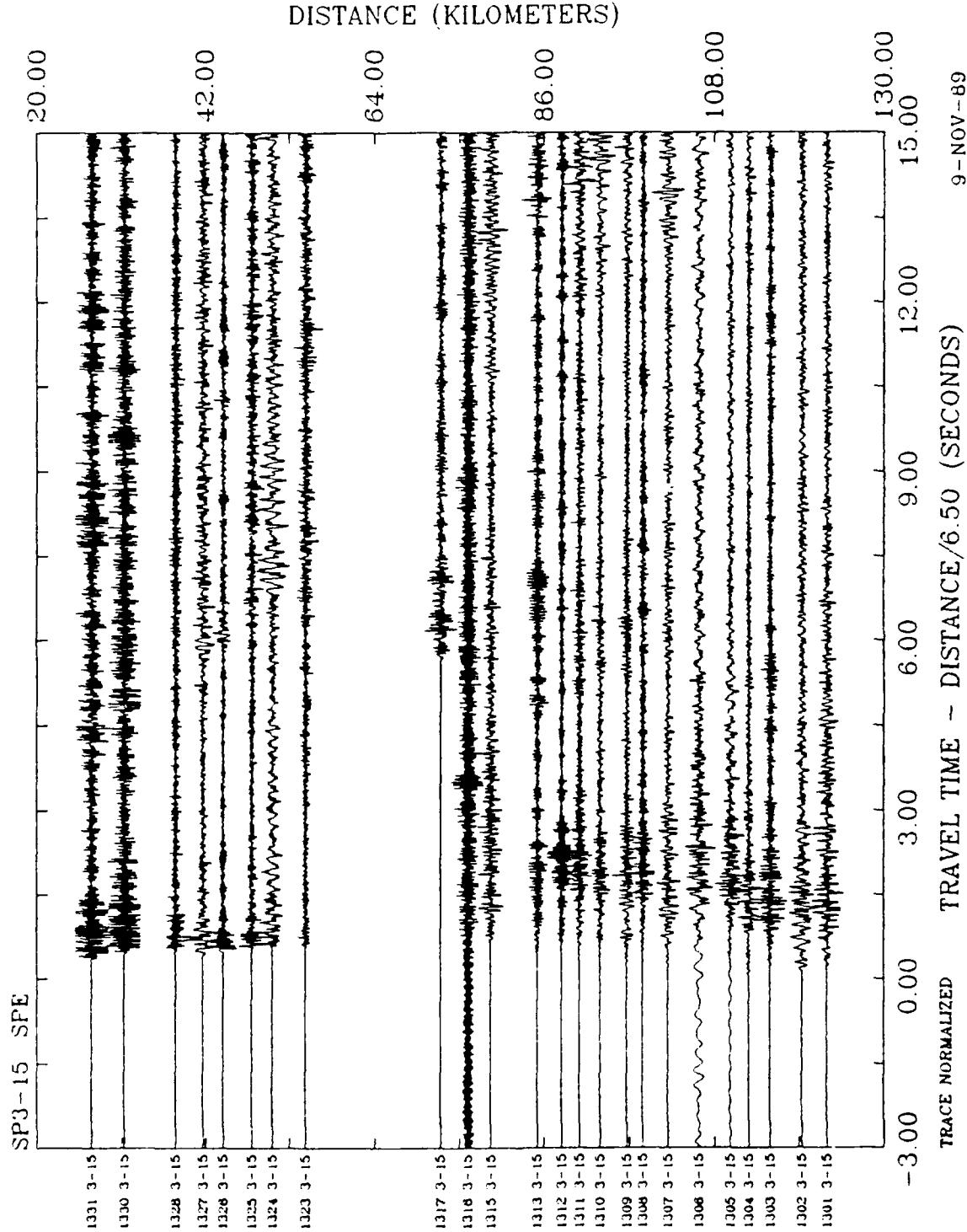


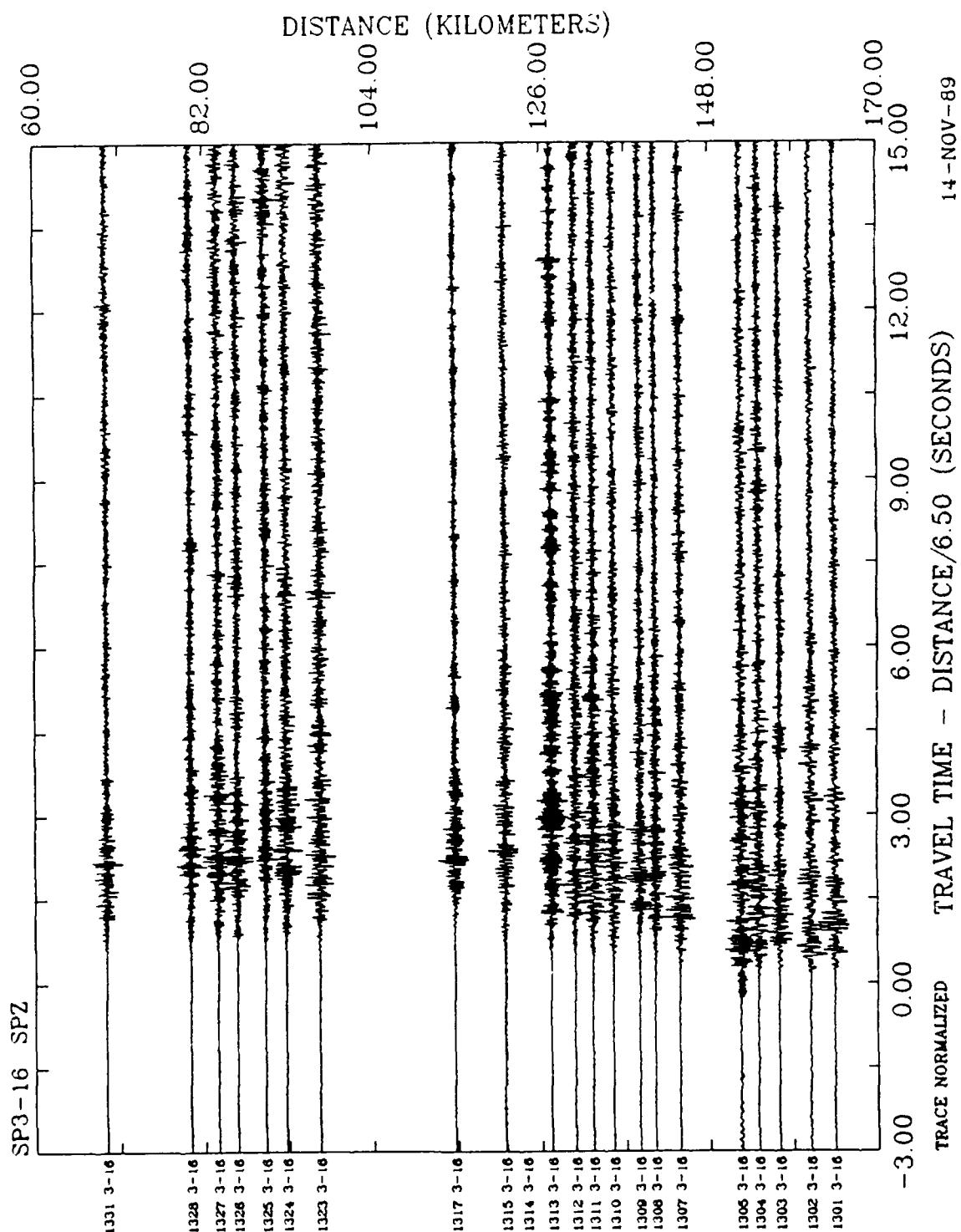


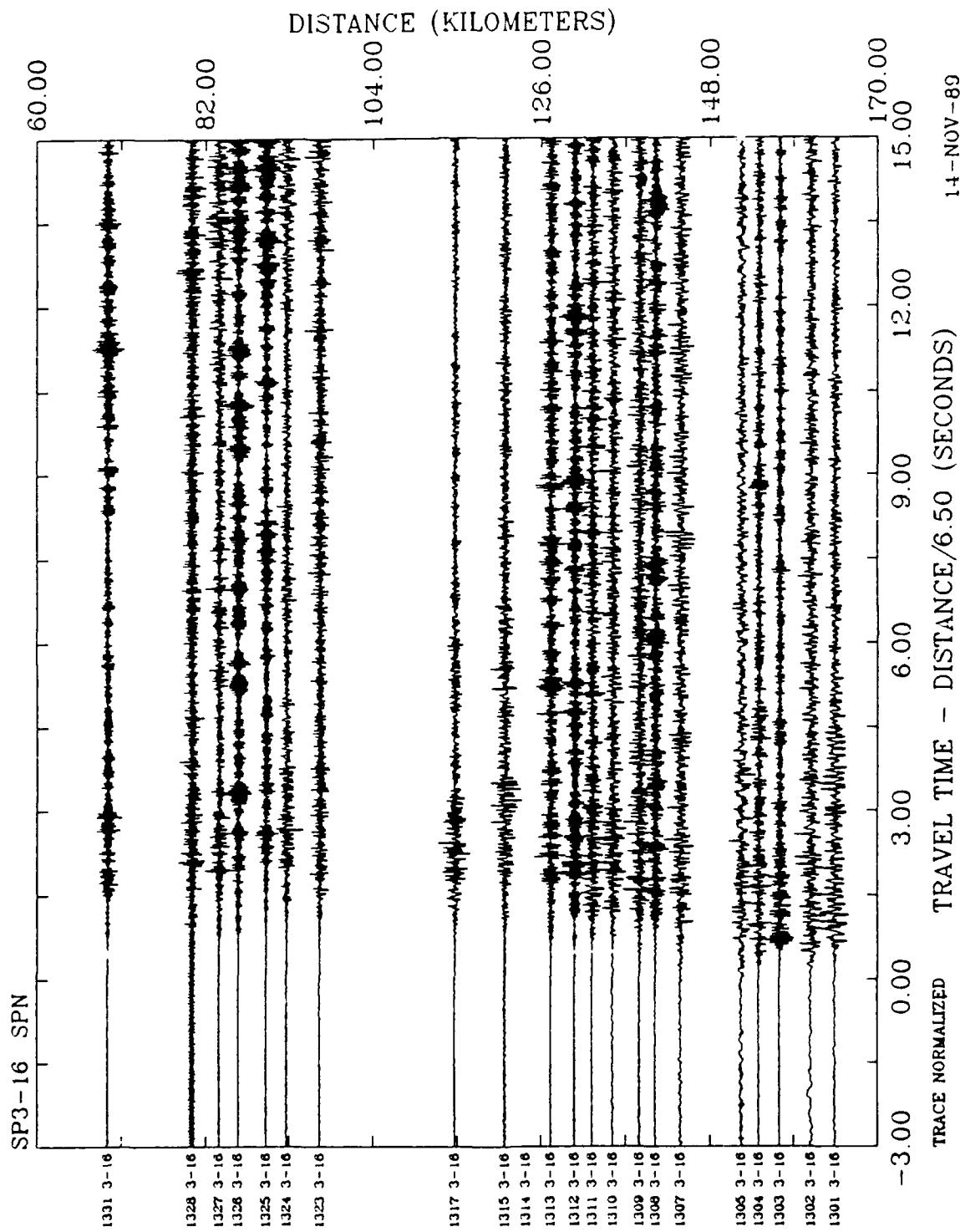


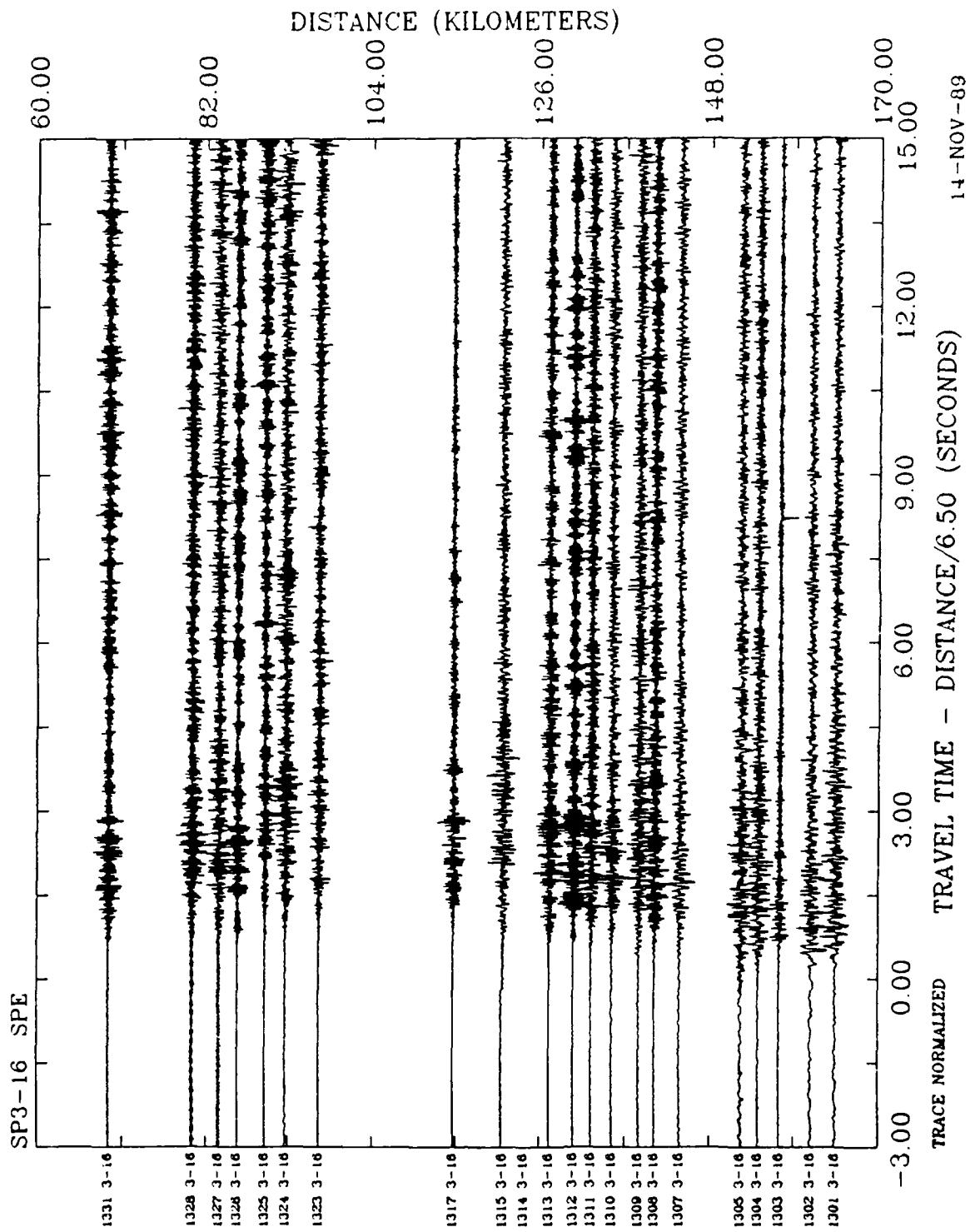


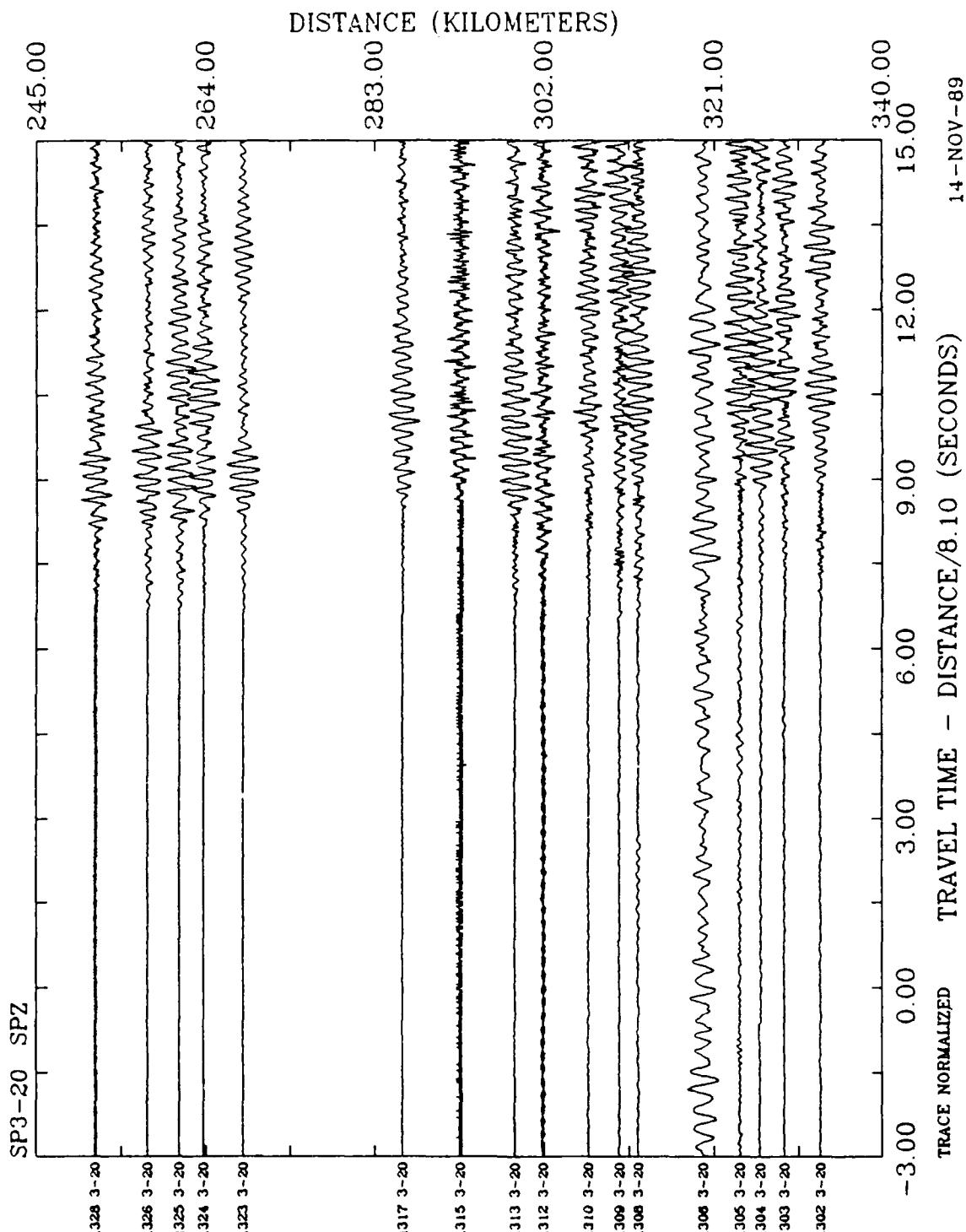


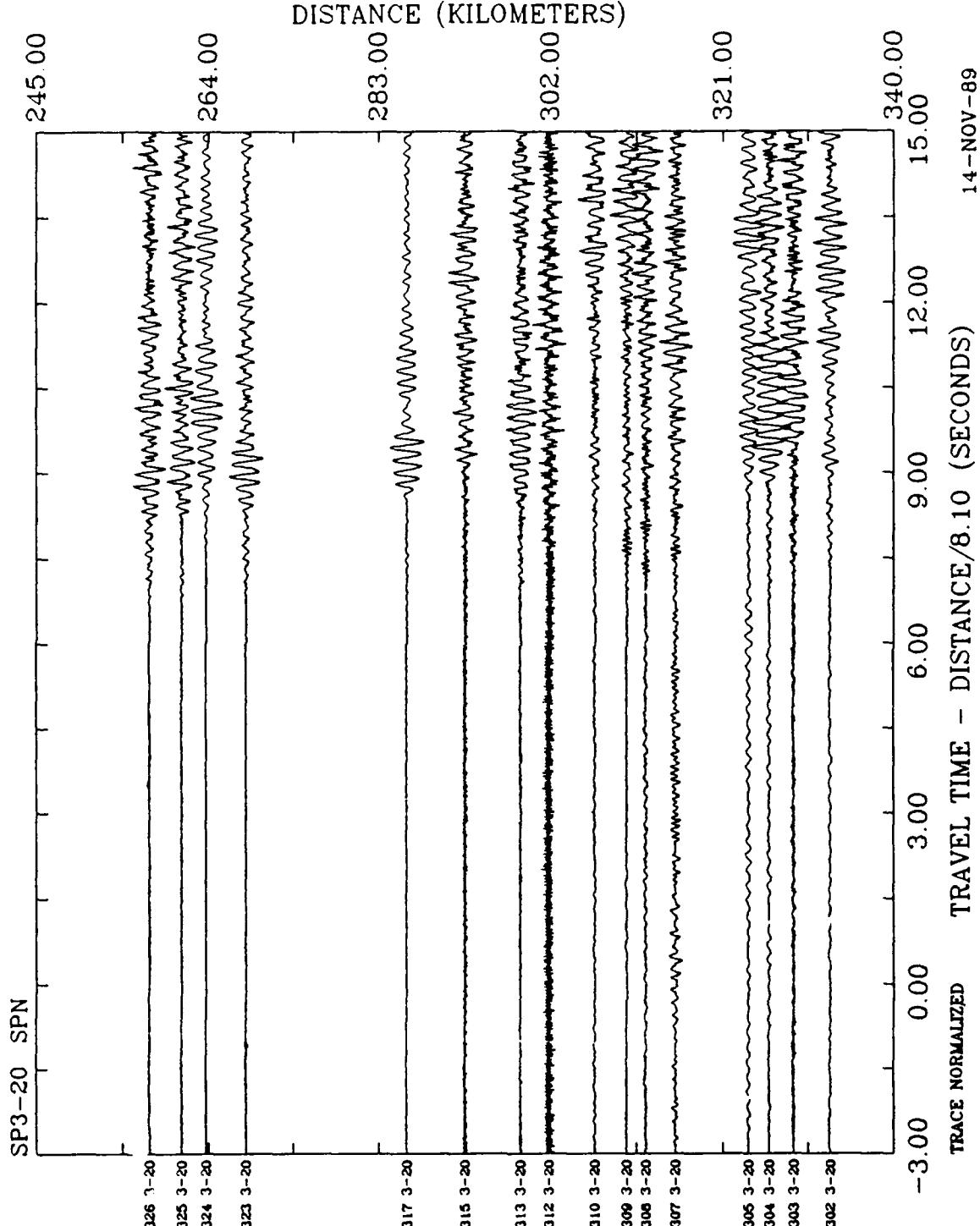












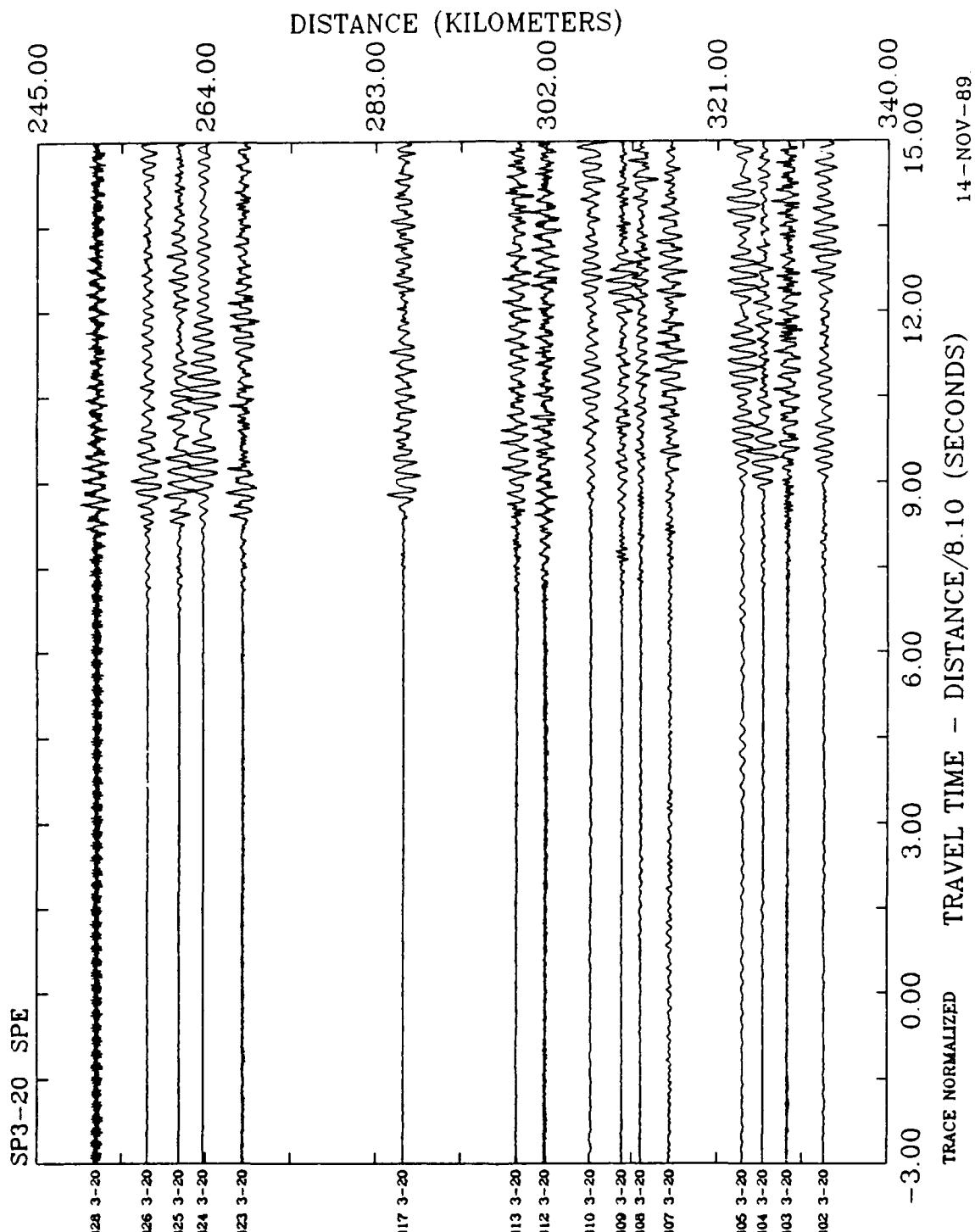


Table 1.

## Index of Shot times and locations for all Deployments.

Index	Shot No.	Shot Time	Size (kg)	Latitude (deg,min)	Longitude (deg,min)	Elevation (m)
1- 01	8	261:06:04:00.006	2091.1	44 35.409N	69 44.766W	95
1- 02	1	261:04:00:00:006	1011.5	44 33.795N	70 02.672W	122
1- 03	9	261:08:00:00.011	1020.6	44 27.537N	70 31.360W	277
1- 04	7	261:06:02:00.010	986.6	44 24.686N	70 58.175W	317
1- 05	2	261:04:02:00.009	997.9	44 20.173N	71 23.098W	516
1- 06	6	261:06:00:00.006	907.2	44 16.857N	71 49.785W	329
1- 07	3	261:04:04:00.006	1224.7	44 10.708N	72 14.192W	460
1- 10	11	261:08:04:00.010	1360.8	44 03.217N	73 23.188W	35
1- 11	5	261:04:08:00.006	1360.8	43 59.969N	74 29.266W	530
1- 22	4	261:04:06:00.008	907.2	43 14.165N	71 51.534W	325
1- 23	10	261:08:02:00.010	1029.7	43 26.947N	70 40.309W	79
2- 04	27	268:08:06:00.011	1224.7	44 24.686N	70 58.175W	317
2- 07	20	268:06:00:00.009	1224.7	44 10.708N	72 14.192W	460
2- 08	15	268:04:00:00.009	907.2	44 09.047N	72 34.595W	433
2- 09	16	268:04:02:00.006	907.2	44 04.409N	72 55.955W	671
2- 10	23	268:06:06:00.006	907.2	44 03.217N	73 23.188W	35
2- 11	25	268:08:02:00.006	975.2	43 59.532N	73 39.668W	287
2- 12	17	268:04:04:00.007	952.5	43 56.259N	73 58.960W	535
2- 13	22	268:06:04:00.007	1043.3	43 58.078N	74 15.689W	524
2- 14	24	268:08:00:00.007	1247.2	43 59.969N	74 29.266W	530
2- 17	21	268:06:02:00.010	1156.7	44 17.825N	75 55.547W	94
2- 20	19	268:04:07:59.970	1360.8	44 28.633N	77 39.494W	0
2- 21	26	268:08:04:00.007	907.2	43 03.415N	72 56.287W	710
2- 22	18	268:04:06:00.007	907.2	43 14.165N	71 51.534W	325
3- 10	35	274:06:06:00.005	1360.8	44 03.217N	73 23.188W	35
3- 14	31	274:04:06:00.009	1134.0	43 59.969N	74 29.266W	530
3- 15	34	274:06:04:00.006	816.5	44 09.337N	75 00.946W	427
3- 16	33	274:06:02:00.007	884.5	44 14.635N	75 31.696W	175
3- 17	30	274:04:04:00.009	272.2	44 17.825N	75 55.547W	94
3- 18	29	274:04:01:59.990	907.2	44 18.079N	76 43.106W	140
3- 19	32	274:05:59:59.996	907.2	44 20.110N	77 12.268W	180
3- 20	28	274:03:59:59:969	907.2	44 28.633N	77 39.494W	0

Table 2a

## NYNEX Deployment One Station Locations

SITE #	LATITUDE	LONGITUDE	ELEVATION (meters)
1101 AFGL	43.7255	-75.9438	347.4550
1102 AFGL	43.7339	-75.9088	384.0293
1103 AFGL	43.7436	-75.8545	441.9384
1104 AFGL	43.7564	-75.7947	502.8955
1105 AFGL	43.7621	-75.7581	496.7998
1106 AFGL	43.7721	-75.7155	502.8955
1107 AFGL	43.7808	-75.6797	512.0390
1108 AFGL	43.7878	-75.6339	508.9912
1109 AFGL	43.7916	-75.5918	512.0390
1110 AFGL	43.8068	-75.5443	362.6943
1111 AFGL	43.8134	-75.4941	265.1631
1112 AFGL	43.8235	-75.4532	249.9238
1113 AFGL	43.8319	-75.3998	246.8760
1114 AFGL	43.8377	-75.3602	332.2158
1115 AFGL	43.8450	-75.3154	333.7397
1116 AFGL	43.8498	-75.2664	387.0771
1117 AFGL	43.8565	-75.2140	460.2256
1118 AFGL	43.8618	-75.1640	441.9384
1119 AFGL	43.8621	-75.1163	508.9912
1120 AFGL	43.8761	-75.0620	387.0771
1121 AFGL	43.8903	-75.0091	518.1347
1122 AFGL	43.9019	-74.9612	536.4218
1123 AFGL	43.9098	-74.9183	516.6108
1124 AFGL	43.9318	-74.8628	518.1347
1125 AFGL	43.9338	-74.8123	548.6132
1126 AFGL	43.9421	-74.7595	556.2328
1127 AFGL	43.9341	-74.7149	583.0540
1128 AFGL	43.9617	-74.6594	560.8046
1129 AFGL	43.9743	-74.5921	548.6132
1130 AFGL	43.9863	-74.5504	585.1874
1131 AFGL	44.0000	-74.4902	508.9912

Table 2b

## NYNEX Deployment Two Station Locations

SITE #	LATITUDE	LONGITUDE	ELEVATION (METERS)
1211 AFGL	44.0385	-73.3704	38.0981
1212 AFGL	44.0177	-73.3297	49.9848
1213 AFGL	43.9976	-73.2869	87.1685
1214 AFGL	43.9768	-73.2446	106.6748
1215 AFGL	43.9580	-73.2091	109.7226
1216 AFGL	43.9313	-73.1533	131.6672
1217 AFGL	43.9052	-73.1030	140.2012
1218 AFGL	43.8828	-73.0641	184.3950
1219 AFGL	43.8628	-73.0158	371.8379
1220 AFGL	43.8425	-72.9900	463.2734
1221 AFGL	43.8317	-72.9057	548.6100
1222 AFGL	43.8001	-72.8922	493.7519
1223 AFGL	43.7787	-72.8542	396.2207
1224 AFGL	43.7545	-72.8050	397.7446
1225 AFGL	43.7233	-72.7469	417.5556
1226 AFGL	43.7009	-72.7194	371.8379
1227 AFGL	43.6810	-72.6875	582.1396
1228 AFGL	43.6569	-72.6524	460.2256
1229 AFGL	43.6377	-72.6134	536.4218
1230 AFGL	43.6202	-72.5659	313.9287
1231 AFGL	43.5992	-72.5251	295.6416
1232 AFGL	43.5715	-72.4829	451.0820
1233 AFGL	43.5527	-72.4436	304.7851
1234 AFGL	43.5357	-72.4071	188.9668
1235 AFGL	43.5161	-72.3724	140.2012
1236 AFGL	43.4887	-72.3218	329.1679
1237 AFGL	43.4635	-72.2861	396.2207
1238 AFGL	43.4240	-72.2160	335.2636
1239 AFGL	43.4109	-72.1812	304.7851
1240 AFGL	43.3872	-72.1367	338.3115
1241 AFGL	43.3666	-72.0968	396.2207
1242 AFGL	43.3449	-72.0650	353.5508
1243 AFGL	43.3163	-72.0250	344.4072
1244 AFGL	43.2942	-71.9726	248.3999
1245 AFGL	43.2705	-71.9266	198.1103
1246 AFGL	43.2487	-71.8956	132.5815

Table 2c

## NYNEX Deployment Three Station Locations

SITE #	LATITUDE	LONGITUDE	ELEVATION (Meters)
1301 AFGL	44.0476	-73.4921	353.5508
1302 AFGL	44.0393	-73.5338	368.7900
1303 AFGL	44.0373	-73.5858	384.0293
1304 AFGL	44.0238	-73.6235	353.5508
1305 AFGL	43.9927	-73.6605	292.5937
1306 AFGL	43.9573	-73.7222	271.2588
1307 AFGL	43.9568	-73.7732	323.0722
1308 AFGL	43.9592	-73.8139	377.9336
1309 AFGL	43.9544	-73.8419	390.1250
1310 AFGL	43.9543	-73.8864	566.9003
1311 AFGL	43.9504	-73.9223	566.9003
1312 AFGL	43.9423	-73.9551	530.3261
1313 AFGL	43.9482	-73.9933	572.9960
1314 AFGL	43.9529	-74.0343	594.3310
1315 AFGL	43.9504	-74.0707	512.0390
1316 AFGL	43.9596	-74.1057	505.9433
1317 AFGL	43.9708	-74.1468	502.8955
1318 AFGL	43.9720	-74.1846	487.6562
1319 AFGL	43.9704	-74.2256	496.7998
1320 AFGL	43.9754	-74.2726	518.1347
1321 AFGL	43.9853	-74.3031	563.8525
1322 AFGL	43.9785	-74.3346	547.0893
1323 AFGL	43.9765	-74.3749	572.9960
1324 AFGL	43.9816	-74.4301	524.2304
1325 AFGL	43.9881	-74.4626	560.8046
1326 AFGL	44.0091	-74.5013	551.6611
1327 AFGL	44.0375	-74.5218	597.3788
1328 AFGL	44.0473	-74.5642	542.5175
1329 AFGL	44.0538	-74.5981	539.4697
1330 AFGL	44.0571	-74.6486	579.0917
1331 AFGL	44.0785	-74.6941	554.7089

Table 3a  
Seismogram Constants for Deployment One

Table 3a Seismogram Constants for Deployment One

Seismogram	Date	Starting Time (sec.)	Time Correction (sec.)	Seismometer Orientation (deg.)	Sensitivity (volts/m sec.)	Pendulum Period (sec.)	Damping Ratio	Distance (km)	Azimuth (deg.)	Back Azimuth (deg.)
1101 1 01 SPZ	17 SEP 1988	261	6 4 40 000	0 6309 GOES	13 00	113 0980	0 494	504 9	261 2	78 9
	SPN		6 4 40 000		77 00	115 7602	0 480	0 426	..	..
	SPE		6 4 40 000			105 1737	0 392	0 343	..	..
1102	SPZ		6 4 40 000	1 1699 WWVB	13 00	96 2929	0 470	0 386	501 8	261 2
	SPN		6 4 40 000			102 6733	0 511	0 406	..	..
	SPE		6 4 40 000			100 1123	0 517	0 434	..	..
1103	SPZ		6 4 40 000	1 1152	77 00	99 6815	0 487	0 444	497 4	261 2
	SPN		6 4 40 000			110 1595	0 477	0 485	..	..
	SPE		6 4 40 000			101 5023	0 479	0 444	..	..
1104	SPZ		6 4 40 000	1 1387	77 00	111 6818	0 457	0 463	492 4	261 3
	SPN		6 4 40 000			110 8799	0 494	0 503	..	..
	SPE		6 4 40 000			109 8537	0 512	0 514	..	..
1105	SPZ		6 4 40 000	1 0156	77 00	92 7538	0 415	0 356	489 4	261 3
	SPN		6 4 40 000			85 1736	0 526	0 440	..	..
	SPE		6 4 40 000			90 0945	0 488	0 382	..	..
1106	SPZ		6 4 40 000	0 1309	77 00	106 5799	0 423	0 348	485 8	261 3
	SPN		6 4 40 000			110 7771	0 512	0 428	..	..
	SPE		6 4 40 000			103 4123	0 515	0 418	..	..
1107	SPZ		6 4 40 000	1 0156	77 00	120 8491	0 427	0 361	482 8	261 3
	SPN		6 4 40 000			114 9841	0 506	0 446	..	..
	SPE		6 4 40 000			117 5121	0 490	0 419	..	..
1108	SPZ		6 4 40 000	0 7723	77 00	105 0776	0 412	0 329	479 0	261 3
	SPN		6 4 40 000			122 8554	0 535	0 470	..	..
	SPE		6 4 40 000			109 5864	0 535	0 450	..	..
1109	SPZ		6 4 40 000	0 7617	77 00	13 00 105 0889	0 471	0 383	475 6	261 3
	SPN		6 4 40 000			114 8958	0 468	0 415	..	..
	SPE		6 4 40 000			106 2634	0 449	0 377	..	..
1110	SPZ		6 4 40 000	0 2148	77 00	119 1771	0 385	0 437	471 5	261 4
	SPN		6 4 40 000			106 9786	0 473	0 453	..	..
	SPE		6 4 40 000			90 1454	0 424	0 320	463 9	261 4
1111	SPZ		6 4 40 000	1 0355	77 00	13 00 105 5084	0 497	0 430	..	..
	SPN		6 4 40 000			113 0375	0 327	0 327	467 4	261 4
	SPE		6 4 40 000			112 1968	0 496	0 423	..	..
1112	SPZ		6 4 40 000	0 7383	77 00	120 1829	0 504	0 419	..	..
	SPN		6 4 40 000			110 1773	0 555	0 459	..	..
	SPE		6 4 40 000			98 5121	0 471	0 362	427 5	261 4
1113	SPZ		6 4 40 000	1 1914	77 00	101 6663	0 489	0 431	..	..
	SPN		6 4 40 000			121 0679	0 441	0 373	460 0	261 2
	SPE		6 4 40 000			98 8521	0 506	0 382	..	..
1114	SPZ		6 4 40 000	0 0000	77 00	13 00 105 5084	0 497	0 430	..	..
	SPN		6 4 40 000			101 6663	0 507	0 400	..	..
	SPE		6 4 40 000			110 6077	0 386	0 339	..	..
1115	SPZ		6 4 40 000	0 0156	77 00	13 00 590 0545	0 641	0 987	411 C	261 6
	SPN		6 4 40 000			942 2431	0 692	1 033	1 646	..
	SPE		6 4 40 000			1078	0 692	1 078	..	..

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a (continued)

Seismogram	Date	Starting Time			Correction (sec)	Seismometer Orientation (deg)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
		h	m	s							
1126 1 01	SPN	17	SEP	1988	261	6	4	40.000	0.1934	WWVB	13.00
	SPE	"	"	"	6	4	40.000	"	"	"	833.3716
	SPZ	"	"	"	6	4	40.000	"	77.00	476.0570	0.976
1128	SPN	"	"	"	6	4	40.000	0.0000	NONE	505.6474	1.005
	SPE	"	"	"	6	4	40.000	"	"	694.0557	1.227
	SPZ	"	"	"	6	4	40.000	"	"	624.0928	0.681
1129	SPN	"	"	"	6	4	40.000	0.0000	"	576.6406	0.864
	SPE	"	"	"	6	4	40.000	0.0000	"	554.5508	1.042
	SPZ	"	"	"	6	4	40.000	"	"	553.7008	1.042
1130	SPN	"	"	"	6	4	40.000	0.0000	"	564.8539	1.147
	SPE	"	"	"	6	4	40.000	0.0000	"	565.5809	1.031
	SPZ	"	"	"	6	4	40.000	"	"	566.3342	1.610
1102 1 02	SPZ	"	"	"	4	0	40.000	1.1387	WWVB	13.00	
	SPN	"	"	"	4	0	40.000	"	"	102.6773	0.470
	SPE	"	"	"	4	0	40.000	"	"	100.1123	0.511
1103	SPZ	"	"	"	4	0	40.000	1.0918	"	99.6815	0.517
	SPN	"	"	"	4	0	40.000	"	"	109.8537	0.487
	SPE	"	"	"	4	0	40.000	"	"	110.1595	0.487
	SPZ	"	"	"	4	0	40.000	"	"	101.5023	0.479
1 04	SPZ	"	"	"	4	0	40.000	1.1152	"	111.6818	0.457
	SPN	"	"	"	4	0	40.000	"	"	110.8799	0.494
	SPE	"	"	"	4	0	40.000	"	"	110.7721	0.512
1 05	SPZ	"	"	"	4	0	40.000	0.0000	"	92.7538	0.415
	SPN	"	"	"	4	0	40.000	"	"	85.1736	0.526
	SPE	"	"	"	4	0	40.000	"	"	90.0945	0.488
	SPZ	"	"	"	4	0	40.000	0.1152	"	106.5799	0.423
	SPN	"	"	"	4	0	40.000	"	"	110.7721	0.512
	SPE	"	"	"	4	0	40.000	"	"	103.4123	0.418
	SPZ	"	"	"	4	0	40.000	"	"	120.8491	0.427
	SPN	"	"	"	4	0	40.000	1.0078	"	13.00	0.427
	SPE	"	"	"	4	0	40.000	"	"	114.9841	0.506
	SPZ	"	"	"	4	0	40.000	"	"	117.5121	0.490
1108	SPZ	"	"	"	4	0	40.000	0.8154	"	105.0776	0.412
	SPN	"	"	"	4	0	40.000	"	"	122.8554	0.535
	SPE	"	"	"	4	0	40.000	"	"	77.00	0.535
	SPZ	"	"	"	4	0	40.000	"	"	109.5664	0.450
1109	SPN	"	"	"	4	0	40.000	0.7695	"	13.00	0.427
	SPE	"	"	"	4	0	40.000	"	"	105.0889	0.471
	SPZ	"	"	"	4	0	40.000	"	"	114.8958	0.468
1110	SPZ	"	"	"	4	0	40.000	0.2002	"	106.2634	0.449
	SPN	"	"	"	4	0	40.000	"	"	119.1771	0.385
	SPE	"	"	"	4	0	40.000	"	"	120.1829	0.437
	SPZ	"	"	"	4	0	40.000	"	"	106.9796	0.473
	SPN	"	"	"	4	0	40.000	1.0234	"	131.8896	0.436
	SPE	"	"	"	4	0	40.000	"	"	113.0178	0.327
	SPZ	"	"	"	4	0	40.000	"	"	112.1968	0.496
	SPN	"	"	"	4	0	40.000	"	"	120.504	0.419
	SPE	"	"	"	4	0	40.000	0.7617	"	13.00	0.424
	SPZ	"	"	"	4	0	40.000	"	"	105.5084	0.497
	SPN	"	"	"	4	0	40.000	"	"	93.7682	0.489
	SPE	"	"	"	4	0	40.000	"	"	77.00	0.431

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a (continued)

Seismogram	Starting Time	Date	h	m	s	Time Correction (sec)	Seismometer Orientation (deg)		Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
							Sensitivity (volts/m sec)	Period (sec)					
1113 1 02	SPZ	17 SEP 1988	261	4	0	40 000	1.1533	WWVB	121.0679	0.441	0.373	436.1	260.9
	SPN			4	0	40 000	"	"	98.8521	0.506	0.382	"	"
	SPE			4	0	40 000	"	"	110.1773	0.555	0.459	"	"
1120	SPN			4	0	40 000	0 0000	NONE	13.00	0.500	0.429	408.1	261.0
	SPE			4	0	40 000	"	"	102.7787	0.464	0.373	"	77.5
	SPZ			4	0	40 000	"	"	101.8267	0.378	0.300	"	"
1121	SPN			4	0	40 000	0 0156	WWVB	13.00	98.5121	0.471	403.6	261.1
	SPE			4	0	40 000	"	"	101.6663	0.507	0.400	"	"
	SPZ			4	0	40 000	"	"	110.6077	0.386	0.339	"	"
1125	SPN			4	0	40 000	0 0234	"	13.00	590.0545	0.641	0.987	387.1
	SPE			4	0	40 000	"	"	77.00	542.9311	1.033	1.646	"
	SPZ			4	0	40 000	"	"	442.2431	0.692	1.078	"	"
1126	SPN			4	0	40 000	0 1611	"	13.00	833.3716	1.976	1.260	382.8
	SPE			4	0	40 000	"	"	77.00	694.0557	0.551	0.681	"
	SPZ			4	0	40 000	"	"	624.0928	0.864	1.000	"	"
1127	SPN			4	0	40 000	0 0000	NONE	13.00	689.6237	0.838	1.063	379.5
	SPE			4	0	40 000	"	"	77.00	763.6659	1.032	1.294	"
	SPZ			4	0	40 000	"	"	719.0599	1.003	1.236	"	"
1128	SPN			4	0	40 000	0 0000	"	13.00	505.6474	0.902	1.454	374.5
	SPE			4	0	40 000	"	"	77.00	694.0557	0.551	0.681	"
	SPZ			4	0	40 000	"	"	624.0928	0.864	1.000	"	"
1129	SPN			4	0	40 000	0 0000	"	13.00	576.6406	1.042	0.325	368.9
	SPE			4	0	40 000	"	"	77.00	554.5508	1.042	0.314	"
	SPZ			4	0	40 000	"	"	553.7008	1.042	0.321	"	"
1130	SPN			4	0	40 000	0 0000	"	13.00	564.8539	1.147	1.960	365.3
	SPE			4	0	40 000	"	"	77.00	565.5809	1.031	1.610	"
	SPZ			4	0	40 000	"	"	566.3342	1.351	2.205	"	"
1101 1 03	SPZ			8	0	35 000	0 7041	GOES	"	1113.9880	0.494	0.465	441.6
	SPN			8	0	35 000	"	"	13.00	1115.7602	0.480	0.426	"
	SPE			8	0	35 000	"	"	77.00	105.1737	0.392	0.343	"
	SPZ			8	0	35 000	1.1836	WWVB	13.00	96.2929	0.470	0.386	438.6
1102	SPN			8	0	35 000	"	"	77.00	102.6773	0.511	0.406	"
	SPE			8	0	35 000	"	"	100.1123	0.517	0.434	"	"
	SPZ			8	0	35 000	1.1387	"	77.00	99.6815	0.487	0.444	434.2
1103	SPN			8	0	35 000	"	"	13.00	110.1595	0.477	0.485	"
	SPE			8	0	35 000	"	"	77.00	101.5023	0.479	0.444	"
	SPZ			8	0	35 000	1.1387	"	111.6818	0.457	0.463	429.2	261.4
1105	SPZ			8	0	35 000	"	"	77.00	109.8537	0.512	0.514	"
	SPN			8	0	35 000	1.0156	"	13.00	92.7538	0.415	0.356	426.1
	SPE			8	0	35 000	"	"	77.00	85.1736	0.526	0.440	"
1106	SPZ			8	0	35 000	"	"	77.00	90.0945	0.488	0.382	"
	SPN			8	0	35 000	0 1543	"	13.00	106.5799	0.423	0.428	422.6
	SPE			8	0	35 000	"	"	77.00	110.7771	0.512	0.428	"
	SPZ			8	0	35 000	"	"	103.4123	0.515	0.418	"	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a (continued)

Seismogram	Date	Starting Time	Correction (sec)	Seismometer Orientation (deg)		Seismometer Sensitivity (volts/m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
				Spec	Spec						
1107 1 03	SPZ	17 SEP 1988	261	8	0 35.000	1.0313 WWVB	13.00	0.427	0 361	419.5	261.5
	SPN			8	0 35.000			0.506	0 446		
	SPE			8	0 35.000			0.490	0 419		
1108	SPZ			8	0 35.000	0.7695	10.50776	0.412	0 329	415.8	261.5
	SPN			8	0 35.000			0.535	0 470		
	SPE			8	0 35.000			0.535	0 450		
1109	SPN			8	0 35.000	0.7383	7.700	10.95664	0.473	0 383	412.4
	SPE			8	0 35.000			0.473	0 453		
	SPZ			8	0 35.000			0.467	0 415		
1110	SPZ			8	0 35.000	0.2305	7.700	10.62634	0.449	0 377	408.3
	SPN			8	0 35.000			0.385	0 437		
	SPE			8	0 35.000			0.473	0 453		
	SPZ			8	0 35.000			0.436	0 467		
1111	SPZ			8	0 35.000	1.0469	7.700	11.38896	0.436	0.327	404.2
	SPN			8	0 35.000			0.375	0 423		
	SPE			8	0 35.000			0.496	0 419		
1112	STZ			8	0 35.000	0.7070	7.700	12.01829	0.504	0.424	400.7
	SPN			8	0 35.000			0.420	0.430		
	SPE			8	0 35.000			0.497	0.430		
	SPZ			8	0 35.000			0.489	0.431		
1113	SPZ			8	0 35.000	1.2148	7.700	12.10679	0.441	0.373	396.7
	SPN			8	0 35.000			0.441	0.423		
	SPE			8	0 35.000			0.506	0.382		
1114	SPN			8	0 35.000	0.0007	7.700	11.01773	0.555	0.459	364.3
	SPE			8	0 35.000			0.471	0.362		
	SPZ			8	0 35.000			0.507	0.400		
1115	SPN			8	0 35.000	0.0234	7.700	10.16663	0.386	0.339	347.8
	SPE			8	0 35.000			0.641	0.987		
	SPZ			8	0 35.000			1.033	1.646		
1116	SPN			8	0 35.000	0.2070	7.700	13.00	0.692	1.078	343.5
	SPE			8	0 35.000			0.976	1.260		
	SPZ			8	0 35.000			1.005	1.227		
1117	SPN			8	0 35.000	0.0000	7.700	5.963226	0.673	0.842	340.1
	SPE			8	0 35.000			0.838	1.063		
	SPZ			8	0 35.000			1.032	1.294		
1118	SPN			8	0 35.000	0.0000	7.700	7.636659	1.032	1.236	343.5
	SPE			8	0 35.000			1.003	1.236		
	SPZ			8	0 35.000			1.042	1.454		
1119	SPN			8	0 35.000	0.0000	7.700	5.9537008	0.902	0.321	335.2
	SPE			8	0 35.000			0.551	0.681		
	SPZ			8	0 35.000			0.864	1.000		
1120	SPN			8	0 35.000	0.0000	7.700	6.2460928	0.864	1.000	329.6
	SPE			8	0 35.000			0.835	1.042		
	SPZ			8	0 35.000			1.031	1.236		
1121	SPN			8	0 35.000	0.0000	7.700	5.9645508	0.902	0.321	326.0
	SPE			8	0 35.000			0.551	0.681		
	SPZ			8	0 35.000			0.864	1.000		
1122	SPN			8	0 35.000	0.0000	7.700	6.944028	0.864	1.000	326.0
	SPE			8	0 35.000			0.835	1.042		
	SPZ			8	0 35.000			1.031	1.236		
1123	SPN			8	0 35.000	0.0000	7.700	5.9537008	0.902	0.321	326.0
	SPE			8	0 35.000			0.551	0.681		
	SPZ			8	0 35.000			0.864	1.000		
1124	SPN			8	0 35.000	0.0000	7.700	6.944028	0.864	1.000	326.0
	SPE			8	0 35.000			0.835	1.042		
	SPZ			8	0 35.000			1.031	1.236		
1125	SPN			8	0 35.000	0.0000	7.700	5.9537008	0.902	0.321	326.0
	SPE			8	0 35.000			0.551	0.681		
	SPZ			8	0 35.000			0.864	1.000		
1126	SPN			8	0 35.000	0.0000	7.700	6.944028	0.864	1.000	326.0
	SPE			8	0 35.000			0.835	1.042		
	SPZ			8	0 35.000			1.031	1.236		
1127	SPN			8	0 35.000	0.0000	7.700	5.9537008	0.902	0.321	326.0
	SPE			8	0 35.000			0.551	0.681		
	SPZ			8	0 35.000			0.864	1.000		
1128	SPN			8	0 35.000	0.0000	7.700	6.944028	0.864	1.000	326.0
	SPE			8	0 35.000			0.835	1.042		
	SPZ			8	0 35.000			1.031	1.236		
1129	SPN			8	0 35.000	0.0000	7.700	5.9537008	0.902	0.321	326.0
	SPE			8	0 35.000			0.551	0.681		
	SPZ			8	0 35.000			0.864	1.000		
1130	SPN			8	0 35.000	0.0000	7.700	6.944028	0.864	1.000	326.0
	SPE			8	0 35.000			0.835	1.042		
	SPZ			8	0 35.000			1.031	1.236		
1101 1 C4	S7Z			6	2 30.000	0.6309 GOES	13.00	11.30980	0.494	0.465	405.7
	SPN			6	2 30.000			11.57602	0.480	0.426	260.9
	SPE			6	2 30.000			10.51737	0.392	0.343	

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a. (continued)

Seismogram	Date	Starting Time	Time	Correction		Seismometer Orientation (deg)	Sensitivity (volts m sec)	Period (sec)	Pendulum Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
				sec	sec							
1102 1 04	SPZ	17 SEP 1988	261	6	2 30 000	1.1699	WWVB	13.00	0.470	0.386	402.6	77.5
	SPN			6	2 30 000	"	"	77.00	1.02.6773	0.511	0.406	"
	SPE			6	2 30 000	"	"	100	1.123	0.517	0.434	"
1103	SPZ			6	2 30 000	1.1074	"	99	0.6815	0.487	0.444	3.98.2
	SPN			6	2 30 000	"	"	110	1.1595	0.477	0.485	"
	SPE			6	2 30 000	"	"	101	1.5023	0.479	0.444	"
1104	SPZ			6	2 30 000	1.1387	"	111	0.6818	0.457	0.463	3.93.2
	SPN			6	2 30 000	"	"	110	0.8799	0.494	0.503	"
	SPE			6	2 30 000	"	"	109	0.8537	0.512	0.514	"
1105	PZ			6	2 30 000	1.0156	"	92	0.7538	0.415	0.356	3.90.2
	SPN			6	2 30 000	"	"	85	1.1736	0.526	0.440	"
	SPE			6	2 30 000	"	"	77	0.0945	0.488	0.382	"
1106	SPZ			6	2 30 000	0.1543	"	106	0.5799	0.423	0.348	3.86.6
	SPN			6	2 30 000	"	"	110	0.7721	0.512	0.428	"
	SPE			6	2 30 000	"	"	103	1.4123	0.515	0.418	"
1107	SPZ			6	2 30 000	1.0156	"	120	0.8491	0.427	0.361	3.83.6
	SPN			6	2 30 000	"	"	114	0.9841	0.506	0.446	"
	SPE			6	2 30 000	"	"	117	1.5121	0.490	0.419	"
1108	SPZ			6	2 30 000	0.7773	"	105	0.0726	0.412	0.329	3.79.8
	SPN			6	2 30 000	"	"	102	0.22.8554	0.535	0.470	"
	SPE			6	2 30 000	"	"	77	0.0	0.450	0.450	"
1109	SPZ			6	2 30 000	0.7383	"	13.00	1.05.5664	0.471	0.383	3.76.4
	SPN			6	2 30 000	"	"	77	0.0	0.468	0.415	"
	SPE			6	2 30 000	"	"	106	0.2634	0.449	0.377	"
1110	SPZ			6	2 30 000	0.2148	"	119	1.1771	0.385	0.437	3.72.3
	SPN			6	2 30 000	"	"	120	0.120	0.453	0.453	"
	SPE			6	2 30 000	"	"	109	0.9796	0.473	0.383	3.61.1
1111	SPZ			6	2 30 000	1.0355	"	13.00	1.05.0889	0.471	0.383	3.76.4
	SPN			6	2 30 000	"	"	77	0.0	0.468	0.415	"
	SPE			6	2 30 000	"	"	112	1.1968	0.449	0.377	"
1112	SPZ			6	2 30 000	0.2148	"	119	1.1771	0.385	0.437	3.72.3
	SPN			6	2 30 000	"	"	120	0.120	0.453	0.453	"
	SPE			6	2 30 000	"	"	108	0.9796	0.473	0.383	3.61.1
1113	SPZ			6	2 30 000	1.1914	"	13.00	1.13.0178	0.375	0.327	3.68.2
	SPN			6	2 30 000	"	"	112	1.1968	0.406	0.423	"
	SPE			6	2 30 000	"	"	77	0.0	0.504	0.419	"
1114	SPZ			6	2 30 000	0.7383	"	13.00	1.90.1454	0.424	0.320	3.64.8
	SPN			6	2 30 000	"	"	77	0.0	0.497	0.430	"
	SPE			6	2 30 000	"	"	77	0.0	0.567	0.430	"
1115	SPZ			6	2 30 000	1.1914	"	121	0.6779	0.441	0.573	3.60.8
	SPN			6	2 30 000	"	"	110	0.6077	0.386	0.339	"
	SPE			6	2 30 000	"	"	77	0.0	0.506	0.387	"
1116	SPZ			6	2 30 000	0.0156	"	13.00	1.98.8521	0.641	0.987	3.11.8
	SPN			6	2 30 000	"	"	77	0.0	0.641	0.555	"
	SPE			6	2 30 000	"	"	110	1.1773	0.555	0.459	"
1117	SPZ			6	2 30 000	0.5840	"	13.00	1.05.5084	0.497	0.430	3.64.8
	SPN			6	2 30 000	"	"	77	0.0	0.489	0.431	"
	SPE			6	2 30 000	"	"	101	0.6663	0.507	0.400	"
1118	SPZ			6	2 30 000	0.0156	"	13.00	1.10.6077	0.441	0.573	3.60.8
	SPN			6	2 30 000	"	"	110	0.590	0.545	0.641	"
	SPE			6	2 30 000	"	"	77	0.0	0.506	0.459	"
1119	SPZ			6	2 30 000	0.1777	"	13.00	542.9311	1.033	1.646	"
	SPN			6	2 30 000	"	"	77	0.0	0.692	1.078	"
	SPE			6	2 30 000	"	"	101	0.442.2431	0.976	1.260	3.07.5
1120	SPZ			6	2 30 000	0.1777	"	13.00	833.3716	1.005	1.227	"
	SPN			6	2 30 000	"	"	77	0.0	0.476	0.570	261.6
	SPE			6	2 30 000	"	"	6	596.3226	0.673	0.842	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a. (continued)

Seismogram	Date	Starting Time	Time	Correction		Seismometer Orientation (deg)	Seismometer Sensitivity (volts/m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)			
				sec	sec										
1128 1-04	SPN	17 SEP 1988	261	6	30.000	0.0000	NONE	13.00	505.6474	0.902	1.454	299.2	261.7	79.1	
"	SPE	"	"	6	230.000	"	"	77.00	694.0557	0.551	0.681	"	"	"	
"	SPZ	"	"	6	230.000	"	"	"	624.0928	0.864	1.000	"	"	"	
1129	SPN	"	"	6	230.000	0.0000	"	13.00	576.6406	1.042	0.325	293.6	261.7	79.2	
"	SPE	"	"	6	230.000	"	"	77.00	554.5508	1.042	0.314	"	"	"	
"	SPZ	"	"	6	230.000	"	"	"	553.7008	1.042	0.321	"	"	"	
1130	SPN	"	"	6	230.000	0.0000	"	13.00	564.8539	1.147	1.960	290.1	261.9	79.4	
"	SPE	"	"	6	230.000	"	"	77.00	565.5809	1.031	1.610	"	"	"	
"	SPZ	"	"	6	230.000	"	"	"	566.3342	1.351	2.205	"	"	"	
1102 05	S22	"	"	4	25.000	1.1543	WWVB	"	96.2929	0.470	0.386	368.6	261.1	78.0	
"	SPN	"	"	4	25.000	"	"	13.00	102.6773	0.511	0.406	"	"	"	
"	SPE	"	"	4	25.000	"	"	77.00	100.1123	0.517	0.434	"	"	"	
1103	S12	"	"	4	25.000	1.0918	"	"	99.6815	0.487	0.444	364.2	261.1	78.0	
"	S2N	"	"	4	25.000	"	"	13.00	110.1595	0.477	0.485	"	"	"	
"	SPE	"	"	4	25.000	"	"	77.00	101.5023	0.479	0.444	"	"	"	
1104	S12	"	"	4	25.000	1.1152	"	"	111.6818	0.457	0.463	359.2	261.2	78.1	
"	S1N	"	"	4	25.000	"	"	13.00	110.8799	0.494	0.503	"	"	"	
"	S1E	"	"	4	25.000	"	"	77.00	109.8537	0.512	0.514	"	"	"	
1105	S12	"	"	4	25.000	0.9922	"	"	92.7538	0.415	0.356	356.2	261.2	78.2	
"	S1N	"	"	4	25.000	"	"	13.00	85.1736	0.526	0.440	"	"	"	
"	S1E	"	"	4	25.000	"	"	77.00	90.0945	0.488	0.382	"	"	"	
1106	S12	"	"	4	25.000	0.1230	"	"	106.5799	0.423	0.348	352.6	261.3	78.3	
"	S1N	"	"	4	25.000	"	"	13.00	110.7771	0.512	0.428	"	"	"	
"	S1E	"	"	4	25.000	"	"	77.00	103.4123	0.515	0.418	"	"	"	
1107	S12	"	"	4	25.000	1.0000	"	"	130.8491	0.427	0.361	349.6	261.3	78.3	
"	S1N	"	"	4	25.000	"	"	13.00	114.9841	0.506	0.446	"	"	"	
"	S1E	"	"	4	25.000	"	"	77.00	117.5121	0.490	0.419	"	"	"	
"	S12	"	"	4	25.000	0.8154	"	"	105.0776	0.412	0.329	345.8	261.3	78.4	
"	S1N	"	"	4	25.000	"	"	13.00	122.8554	0.535	0.470	"	"	"	
"	S1E	"	"	4	25.000	"	"	77.00	109.5664	0.535	0.450	"	"	"	
1109	S1N	"	"	4	25.000	0.7695	"	"	13.00	105.0889	0.471	0.383	342.4	261.3	78.4
"	S1E	"	"	4	25.000	"	"	77.00	114.8958	0.468	0.415	"	"	"	
"	S12	"	"	4	25.000	"	"	13.00	105.0776	0.412	0.329	345.8	261.3	78.4	
"	S1N	"	"	4	25.000	0.2002	"	"	106.2634	0.449	0.377	"	"	"	
1110	S12	"	"	4	25.000	"	"	13.00	119.1771	0.385	0.437	338.3	261.4	78.5	
"	S1N	"	"	4	25.000	0.7695	"	"	106.9796	0.473	0.453	"	"	"	
"	S1E	"	"	4	25.000	"	"	77.00	131.8896	0.436	0.567	"	"	"	
1111	S12	"	"	4	25.000	1.0234	"	"	113.0178	0.375	0.327	334.2	261.4	78.6	
"	S1N	"	"	4	25.000	"	"	13.00	112.1968	0.496	0.423	"	"	"	
"	S1E	"	"	4	25.000	"	"	77.00	120.1829	0.504	0.419	"	"	"	
1112	S12	"	"	4	25.000	0.7695	"	"	90.1454	0.424	0.320	330.8	261.5	78.7	
"	S1N	"	"	4	25.000	"	"	13.00	105.5084	0.497	0.430	"	"	"	
"	S1E	"	"	4	25.000	"	"	77.00	93.7682	0.489	0.431	"	"	"	
1113	S22	"	"	4	25.000	1.1621	"	"	121.0679	0.441	0.373	326.8	261.2	78.4	
"	S21	"	"	4	25.000	"	"	-13.00	98.8521	0.506	0.382	"	"	"	
"	SPE	"	"	4	25.000	"	"	77.00	110.1773	0.555	0.459	"	"	"	

Seismometer orientation is measured as degrees clockwise from geographic north.

Table 3a. (continued)

Seismogram	Date	Starting Time	Time	Seismometer		Pendulum	Damping	Back
				Correction	Orientation			
			(sec)	(deg)	(volts/m sec)	(sec)	(deg)	(deg)
1120 1 05	SPN	17 SEP 1988	261	4	25.000	0.0000	13.00	102.7787
	SPE			4	25.000	"	0.500	0.429
	SPZ			4	25.000	"	0.464	0.373
1121	SPN			4	25.000	0.0234	79.9450	"
	SPE			4	25.000	"	0.378	0.300
	SPZ			4	25.000	"	0.471	0.362
1125	SPN			4	25.000	0.0234	98.5121	294.3
	SPE			4	25.000	"	0.471	0.400
	SPZ			4	25.000	"	0.386	0.339
1126	SPN			4	25.000	0.0000	110.6077	"
	SPE			4	25.000	"	0.641	0.987
	SPZ			4	25.000	"	1.033	1.646
1127	SPN			4	25.000	"	542.9311	"
	SPE			4	25.000	"	442.2431	0.692
	SPZ			4	25.000	"	0.692	1.078
1128	SPN			4	25.000	0.1689	13.00	833.3716
	SPE			4	25.000	"	0.976	1.260
	SPZ			4	25.000	"	0.551	0.681
1129	SPN			4	25.000	0.0000	13.00	624.0928
	SPE			4	25.000	"	0.864	1.000
	SPZ			4	25.000	"	0.878	1.063
1130	SPN			4	25.000	"	77.00	270.2
	SPE			4	25.000	"	1.032	1.294
	SPZ			4	25.000	"	1.005	1.236
1131	SPN			4	25.000	0.0000	13.00	505.6474
	SPE			4	25.000	"	0.902	1.454
	SPZ			4	25.000	"	0.551	0.681
1132	SPN			4	25.000	"	624.0928	0.864
	SPE			4	25.000	"	1.000	1.000
	SPZ			4	25.000	"	576.6406	1.042
96	SPN			4	25.000	"	77.00	554.5508
	SPE			4	25.000	"	1.042	1.314
	SPZ			4	25.000	"	0.321	0.422
1130	SPN			4	25.000	0.0000	13.00	553.7008
	SPE			4	25.000	"	1.042	1.147
	SPZ			4	25.000	"	1.960	256.1
1131	SPN			4	40.000	0.0000	77.00	565.5809
	SPE			4	40.000	"	1.031	1.610
	SPZ			4	40.000	"	1.351	2.205
	SPN			4	40.000	"	707.9183	0.750
	SPE			4	40.000	"	0.885	251.1
	SPZ			4	40.000	"	1.315	80.4
	SPN			4	40.000	"	696.1515	1.041
	SPE			4	40.000	"	0.900	0.680
	SPZ			4	40.000	"	0.900	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a. (continued)

Seismogram	Date	Starting Time	Time Correction	Seismometer Orientation	Seismometer Sensitivity	Pendulum Period	Damping Ratio	Distance (km)	Back Azimuth (deg)	
									Seismometer Orientation (deg)	Seismometer Sensitivity (volts/m sec)
1101 1 06	SPZ	17 SEP 1988	261	6 0 20.000	0 6.309 GOES	13.00	0.465	335.5	260.8	72.0
"	SPN	"	"	6 0 20.000	"	115.7602	0.480	0 426	"	"
"	SPE	"	"	6 0 20.000	77.00	105.1737	0.392	0 343	"	"
1102	SPZ	"	"	6 0 20.000	1 1.699 WWVB	96.2929	0.470	0.386	332.5	260.9
"	SPN	"	"	6 0 20.000	"	102.6773	0.511	0.406	"	"
"	SPE	"	"	6 0 20.000	"	100.1123	0.517	0 434	"	"
1103	SPZ	"	"	6 0 20.000	1 1.1152	99.6815	0.487	0 444	328.1	260.9
"	SPN	"	"	6 0 20.000	"	110.1595	0.477	0 485	"	"
"	SPE	"	"	6 0 20.000	77.00	101.5023	0.479	0 444	"	"
1104	SPZ	"	"	6 0 20.000	1 1.1387	111.6818	0.457	0 463	323.0	261.0
"	SPN	"	"	6 0 20.000	"	110.8799	0.494	0 503	"	"
"	SPE	"	"	6 0 20.000	"	109.8537	0.512	0 514	"	"
1105	SPZ	"	"	6 0 20.000	1 0.0156	92.7538	0.415	0 356	320.0	261.0
"	SPN	"	"	6 0 20.000	"	85.1736	0.526	0 440	"	"
"	SPE	"	"	6 0 20.000	"	90.0945	0.488	0 382	"	"
1106	SPZ	"	"	6 0 20.000	0 1.309	106.5799	0.423	0 343	316.4	261.1
"	SPN	"	"	6 0 20.000	"	110.7771	0.512	0 428	"	"
"	SPE	"	"	6 0 20.000	"	77.00	0.4123	0.515	0 418	"
1107	SPZ	"	"	6 0 20.000	1 0.0156	120.8491	0.427	0 361	313.4	261.1
"	SPN	"	"	6 0 20.000	"	114.9841	0.506	0 446	"	"
"	SPE	"	"	6 0 20.000	"	117.5121	0.490	0 419	"	"
1108	SPZ	"	"	6 0 20.000	0 7695	105.0776	0.412	0 329	309.7	261.1
"	SPN	"	"	6 0 20.000	"	103.4123	0.515	0 418	"	"
"	SPE	"	"	6 0 20.000	"	13.00	0.554	0.535	0 470	"
1109	SPZ	"	"	6 0 20.000	0 7461	77.00	109.5664	0.535	0 450	313.4
"	SPN	"	"	6 0 20.000	"	105.0889	0.471	0 383	306.3	261.1
"	SPE	"	"	6 0 20.000	"	77.00	114.8958	0.468	0 415	"
1110	SPZ	"	"	6 0 20.000	"	106.2634	0.449	0 377	"	"
"	SPN	"	"	6 0 20.000	0 2070	119.1771	0.385	0 437	302.2	261.3
"	SPE	"	"	6 0 20.000	"	13.00	106.9796	0.473	0 453	"
1111	SPZ	"	"	6 0 20.000	0 7461	77.00	131.8896	0.456	0 567	"
"	SPN	"	"	6 0 20.000	"	113.0178	0.375	0 327	298.1	261.2
"	SPE	"	"	6 0 20.000	"	13.00	112.1968	0.496	0 423	"
1112	SPZ	"	"	6 0 20.000	"	77.00	120.1829	0.504	0 419	"
"	SPN	"	"	6 0 20.000	0 7461	90.1454	0.424	0 320	294.6	261.3
"	SPE	"	"	6 0 20.000	"	105.5084	0.497	0 430	"	"
1113	SPZ	"	"	6 0 20.000	1 1.1914	77.00	93.7682	0.489	0 431	"
"	SPN	"	"	6 0 20.000	"	121.0679	0.441	0 373	290.6	261.0
"	SPE	"	"	6 0 20.000	"	13.00	98.8521	0.506	0 382	"
1121	SPZ	"	"	6 0 20.000	"	77.00	110.1773	0.555	0 449	"
"	SPN	"	"	6 0 20.000	0 0000	13.00	98.5121	0.471	0 362	258.2
"	SPE	"	"	6 0 20.000	"	77.00	101.6663	0.507	0 400	"
1125	SPZ	"	"	6 0 20.000	0 0156	13.00	590.0545	0.386	0 339	241.7
"	SPN	"	"	6 0 20.000	"	77.00	542.9311	1.033	1.646	261.9
"	SPE	"	"	6 0 20.000	"	442.2431	0.692	1.078	"	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a. (continued)

Seismogram	Date	Starting Time h m s	Time Correction (sec)	Seismometer Orientation (deg)		Sensitivity (volts/m sec)	Period (sec)	Pendulum Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
				Seismometer	Sensitivity						
1126 1-06	SPN	17 SEP 1988	261	6	0 20 000	0 1855 WWVB	-13.00	833.3716	0.976	1.260	237.4
	SPE			6	0 20 000	"	77.00	476.0570	1.005	1.227	"
1128	SPZ			6	0 20 000	"		596.3226	0.673	0.842	"
	SPN			6	0 20 000	0 0000 NONE	13.00	605.6474	0.902	1.454	229.1
	SPE			6	0 20 000	"	77.00	694.0557	0.551	0.681	80.1
	SPZ			6	0 20 000	"		624.0928	0.864	1.000	"
1129	SPN			6	0 20 000	0 0000	13.00	576.6406	1.042	0.325	223.6
	SPE			6	0 20 000	"	77.00	554.5508	1.042	0.314	"
	SPZ			6	0 20 000	"		553.7008	1.042	0.321	"
1130	SPN			6	0 20 000	0 0000	13.00	564.8539	1.147	1.960	220.0
	SPE			6	0 20 000	"	77.00	565.5809	1.031	1.610	"
	SPZ			6	0 20 000	"		566.3342	1.351	2.205	"
1102 1 07	SPZ			4	4 15 000	1 1465 WWVB	"	96.2929	0.470	0.386	261.8
	SPN			4	4 15 000	"		102.6773	0.511	0.406	"
	SPE			4	4 15 000	"		100.1123	0.517	0.434	"
	SPZ			4	4 15 000	1 0996	"	99.6815	0.487	0.444	294.3
1103	SPZ			4	4 15 000	"		110.1595	0.477	0.485	"
	SPN			4	4 15 000	"		101.5023	0.479	0.444	"
	SPE			4	4 15 000	1 1074	"	111.6818	0.457	0.463	289.3
1104	SPZ			4	4 15 000	"		110.8799	0.494	0.503	"
	SPN			4	4 15 000	"		109.8537	0.512	0.512	"
	SPE			4	4 15 000	"		92.7538	0.415	0.356	286.3
	SPZ			4	4 15 000	1 0000	"	85.1736	0.526	0.440	"
1105	SPZ			4	4 15 000	"		90.0945	0.488	0.382	"
	SPN			4	4 15 000	"		106.5799	0.423	0.348	282.8
	SPE			4	4 15 000	0 1230	"	106.5799	0.423	0.348	282.0
	SPZ			4	4 15 000	"		110.7771	0.512	0.428	"
1106	SPZ			4	4 15 000	"		103.4123	0.515	0.418	"
	SPN			4	4 15 000	"		120.8491	0.427	0.361	279.8
	SPE			4	4 15 000	1 0078	"	114.9841	0.506	0.446	"
	SPZ			4	4 15 000	"		117.5121	0.490	0.419	"
1108	SPZ			4	4 15 000	0 8154	"	105.0776	0.412	0.329	276.0
	SPN			4	4 15 000	"		122.8554	0.535	0.470	"
	SPE			4	4 15 000	"		109.5664	0.535	0.450	"
1109	SPZ			4	4 15 000	0 7617	"	105.0889	0.471	0.383	272.6
	SPN			4	4 15 000	"		114.8958	0.468	0.415	"
	SPE			4	4 15 000	"		106.2634	0.449	0.377	"
	SPZ			4	4 15 000	0 2002	"	119.1771	0.385	0.437	262.3
1110	SPZ			4	4 15 000	"		13.00	106.9796	0.473	0.453
	SPN			4	4 15 000	"		77.00	131.8896	0.436	0.567
	SPE			4	4 15 000	1 0234	"	113.0178	0.375	0.327	264.4
1111	SPZ			4	4 15 000	"		13.00	112.1968	0.496	0.423
	SPN			4	4 15 000	"		77.00	120.1829	0.504	0.419
	SPE			4	4 15 000	0 7617	"	90.1454	0.424	0.320	261.0
1112	SPZ			4	4 15 000	"		105.5084	0.497	0.430	"
	SPN			4	4 15 000	"		77.00	93.7682	0.480	0.431
	SIE			4	4 15 000	"					"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a. (continued)

Seismogram	Date	Starting Time d h m s	Time (sec)	Correction (")	Seismometer Orientation (deg)	Sensitivity (volts m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)	
1113 1 07	SP2	17 SEP 1988	261	4 15 000	1.1543	WWVB	121.0679	0.441	256.9	262.0	79.8	
	SPN			4 15 000	"	"	98.8521	0.506	382	"	"	
	SPE			4 15 000	"	"	110.1773	0.555	459	"	"	
1120	SPN			4 15 000	0.0000	NONE	13.00	0.429	229.0	262.5	80.6	
	SPE			4 15 000	"	"	102.7787	0.500	373	"	"	
	SP2			4 15 000	"	"	101.8267	0.464	"	"	"	
1121	SPN			4 15 000	0.0234	WWVB	13.00	0.378	300	"	"	
	SP2			4 15 000	"	"	98.5121	0.471	224.5	262.9	80.8	
	SPE			4 15 000	"	"	101.6663	0.507	400	"	"	
1125	SPN			4 15 000	0.0234	"	110.6077	0.386	339	"	"	
	SPE			4 15 000	"	"	590.0545	0.641	987	208.2	81.6	
	SP2			4 15 000	"	"	542.9311	1.033	1.646	"	"	
1126	SPN			4 15 000	0.1611	"	13.00	442.2431	692	1.078	"	
	SP2			4 15 000	"	"	833.3716	976	260	203.8	263.5	
	SPE			4 15 000	"	"	694.0557	0.551	681	"	81.7	
1127	SPN			4 15 000	0.0000	NONE	-13.00	624.0928	864	1.000	"	
	SP2			4 15 000	"	"	689.6237	0.838	1.063	200.4	263.1	
	SPE			4 15 000	"	"	763.6659	1.302	294	"	"	
1128	SPN			4 15 000	0.0000	"	77.00	719.0599	1.003	236	"	
	SP2			4 15 000	"	"	505.6474	0.902	454	195.6	82.1	
	SPE			4 15 000	"	"	694.0557	0.551	681	"	"	
1129	SPN			4 15 000	0.0000	"	77.00	624.0928	864	1.000	"	
	SP2			4 15 000	"	"	676.6406	1.042	325	180.0	264.0	
	SPE			4 15 000	"	"	554.5508	0.42	314	"	82.3	
99	SPN			4 15 000	"	"	553.7008	1.042	321	"	"	
1130	SPN			4 15 000	0.0000	"	-13.00	564.8539	1.147	960	186.5	82.6
	SPE			4 15 000	"	"	77.00	565.5809	1.031	1.610	"	
	SP2			4 15 000	"	"	566.3342	1.351	205	"	"	
1101 1-10	SP2			8 3 57 000	0.7041	GOES	-13.00	113.0980	0.494	465	208.7	260.8
	SPN			8 3 57 000	"	"	115.7602	0.480	426	"	"	
	SPE			8 3 57 000	"	"	105.1737	0.392	343	"	"	
1102	SP2			8 3 57 000	1.1836	WWVB	96.2929	0.470	386	205.7	260.9	
	SPN			8 3 57 000	"	"	102.6773	0.511	406	"	"	
	SPE			8 3 57 000	"	"	100.1123	0.517	434	"	"	
1103	SP2			8 3 57 000	1.1309	"	99.8815	0.487	444	201.2	261.0	
	SPN			8 3 57 000	"	"	110.1595	0.477	485	"	"	
	SPE			8 3 57 000	"	"	101.5023	0.479	444	"	"	
1104	SP2			8 3 57 000	1.1387	"	-13.00	111.6818	0.457	463	196.2	261.1
	SPN			8 3 57 000	"	"	100.00	110.8799	0.494	503	"	"
	SPE			8 3 57 000	"	"	109.8537	0.512	514	"	"	
1105	SP2			8 3 57 000	1.0156	"	-13.00	92.7538	0.415	356	193.2	261.2
	SPN			8 3 57 000	"	"	101.5023	0.440	440	"	"	
	SPE			8 3 57 000	"	"	85.1736	0.526	418	"	"	
1106	SP2			8 3 57 000	-0.1463	"	-13.00	80.0945	0.488	382	"	"
	SPN			8 3 57 000	"	"	106.5799	0.423	348	189.7	261.3	
	SPE			8 3 57 000	"	"	110.7771	0.512	428	"	"	
	SP2			8 3 57 000	"	"	103.4123	0.515	418	"	"	

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a. (continued)

Seismogram	Date	Starting Time d h m s	Time Correction (sec)	Seismometer		Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)	
				Seismometer	Orientation (deg)						
1107 1-10 SPZ	17 SEP 1988	261 8 3 57.000	1.0313 WWVB	120	8491	0.427	0.361	186.7	261.5	79.9	
SPN		8 3 57.000	"	114	9841	0.506	0.446	"	"	"	
SPE		8 3 57.000	"	117	5121	0.490	0.419	"	"	"	
SPZ		8 3 57.000	0.7695	105	0.776	0.412	0.329	182.9	261.5	79.9	
SPN		8 3 57.000	"	122	8554	0.535	0.470	"	"	"	
SPE		8 3 57.000	"	109	5664	0.535	0.450	"	"	"	
SPN		8 3 57.000	0.7383	13.00	105.0889	0.471	0.383	179.5	261.4	79.9	
SPE		8 3 57.000	"	114	8958	0.468	0.415	"	"	"	
SPZ		8 3 57.000	"	106	2634	0.449	0.377	"	"	"	
SPZ		8 3 57.000	0.2305	119	1771	0.437	0.437	175.4	261.8	80.3	
SPN		8 3 57.000	"	106	9796	0.473	0.453	"	"	"	
SPE		8 3 57.000	"	77.00	131.9896	0.436	0.567	"	"	"	
SPZ		8 3 57.000	1.0625	113	0.0178	0.375	0.327	171.3	261.8	80.3	
SPN		8 3 57.000	"	13.00	112.1968	0.496	0.423	"	"	"	
SPE		8 3 57.000	"	77.00	120.1829	0.504	0.419	"	"	"	
SPZ		8 3 57.000	0.7148	90	1454	0.424	0.320	167.9	262.0	8C.5	
SPN		8 3 57.000	"	13.00	105.5084	0.497	0.430	"	"	"	
SPE		8 3 57.000	"	77.00	93.7682	0.489	0.431	"	"	"	
SPZ		8 3 57.000	1.2227	121	0.6779	0.441	0.373	163.8	261.3	79.9	
SPN		8 3 57.000	"	77.00	13.00	0.506	0.382	"	"	"	
SPE		8 3 57.000	"	77.00	110.1773	0.555	0.459	"	"	"	
SPN		8 3 57.000	0.0234	13.00	98.8521	0.471	0.362	131.5	262.6	81.5	
SPE		8 3 57.000	"	77.00	101.6663	0.507	0.400	"	"	"	
SPZ		8 3 57.000	"	110	6077	0.386	0.339	"	"	"	
SPN		8 3 57.000	0.0313	13.00	590.0545	0.641	0.987	115.1	263.9	82.9	
SPE		8 3 57.000	"	77.00	542.9311	1.033	1.646	"	"	"	
SPZ		8 3 57.000	"	442	2431	0.692	1.078	"	"	"	
SPN		8 3 57.000	0.2070	13.00	833.3716	0.976	1.260	110.8	264.1	83.1	
SPE		8 3 57.000	"	77.00	476.0570	1.005	1.227	"	"	"	
SPZ		8 3 57.000	"	596	3226	0.673	0.842	"	"	"	
SPN		8 3 57.000	0.0000	13.00	689.6257	0.838	1.063	107.4	263.4	82.4	
SPE		8 3 57.000	"	77.00	763.6659	1.032	1.294	"	"	"	
SPZ		8 3 57.000	"	719	0.599	1.003	1.236	"	"	"	
SPN		8 3 57.000	0.0000	13.00	505	6474	0.902	1.454	102.6	264.7	83.8
SPE		8 3 57.000	"	77.00	694	0.557	0.551	0.681	"	"	
SPZ		8 3 57.000	"	624	0.928	0.864	1.000	"	"	"	
SPN		8 3 57.000	0.0000	13.00	576	6406	1.042	0.325	97.1	265.2	84.4
SPE		8 3 57.000	"	77.00	554	5503	1.042	0.314	"	"	"
SPZ		8 3 57.000	"	553	7008	1.042	0.321	"	"	"	
SPN		8 3 57.000	0.0000	13.00	564	8539	1.147	1.960	0.3.6	265.8	85.0
SPE		8 3 57.000	"	77.00	565	5809	1.031	1.610	"	"	"
SPZ		8 3 57.000	"	566	3342	1.351	2.205	"	"	"	
SPZ		4 7 55.000	1.1465 WWVB	86	2929	0.470	0.386	117.9	258.0	75.0	
SPN		4 7 55.000	"	102	6773	0.511	0.406	"	"	"	
SPE		4 7 55.000	"	100	1123	0.517	0.434	"	"	"	

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a (continued)

Seismogram	Date	Starting Time	Time Correction	Orientation	Seismometer Sensitivity	Pendulum Period	Damping Ratio	Distance	Azimuth (deg.)	Back Azimuth (deg.)
		h m s	1 sec.	deg.	Volts/m sec.	sec.		km		
1103 1 14 SPZ	17 SEP 1988	061	4	7 55 000	1 0850 WWVB	13 00	0 482	99 6815	0 444	75 0
SPN		4	7 55 000			77 00	0 477	110 1595	0 444	
SPE		4	7 55 000	1	0000			101 5023	0 479	
1104 SPZ		4	7 55 000					111 6818	0 451	75 1
SPN		4	7 55 000					110 8799	0 494	
SPE		4	7 55 000					109 8537	0 512	
1105 SPZ		4	7 55 000	0	0022			92 0538	0 416	75 1
SPN		4	7 55 000					85 1736	0 526	
SPE		4	7 55 000					90 0945	0 488	
1106 SPZ		4	7 55 000	0	1387			106 5799	0 423	75 2
SPN		4	7 55 000					110 7771	0 614	
SPE		4	7 55 000					101 8	0 428	
1107 SPZ		4	7 55 000	1	0078			103 4123	0 515	
SPN		4	7 55 000					120 8491	0 427	
SPE		4	7 55 000					114 9841	0 506	
1108 SPZ		4	7 55 000	0	7842			117 5121	0 490	75 3
SPN		4	7 55 000					105 0776	0 412	
SPE		4	7 55 000					122 8554	0 535	
1109 SPN		4	7 55 000	0	7539			109 5664	0 450	75 2
SPE		4	7 55 000					105 0889	0 471	
1110 SPZ		4	7 55 000					114 8958	0 468	75 0
SPN		4	7 55 000					106 2634	0 449	
SPE		4	7 55 000					119 1771	0 437	
1111 SPZ		4	7 55 000	1	0234			106 9796	0 473	75 5
SPN		4	7 55 000					131 863	0 436	
SPE		4	7 55 000					113 0178	0 375	
1112 SPZ		4	7 55 000	0	2158			112 1968	0 496	75 3
SPN		4	7 55 000					100 2634	0 377	
SPE		4	7 55 000					119 1771	0 437	
1113 SPZ		4	7 55 000	0	7695			106 9796	0 473	75 2
SPN		4	7 55 000		0 0000	NONE		130 0	0 453	
SPE		4	7 55 000					131 863	0 436	
1114 SPZ		4	7 55 000	1	1387			113 0178	0 375	75 0
SPN		4	7 55 000					112 1968	0 496	
SPE		4	7 55 000					106 2634	0 377	
1115 SPZ		4	7 55 000	0	7700			119 1771	0 437	75 5
SPN		4	7 55 000					106 9796	0 473	
SPE		4	7 55 000					131 863	0 436	
1116 SPZ		4	7 55 000	1	0234			113 0178	0 375	75 3
SPN		4	7 55 000					112 1968	0 496	
SPE		4	7 55 000					106 2634	0 377	
1117 SPZ		4	7 55 000	0	7700			119 1771	0 437	75 2
SPN		4	7 55 000					106 9796	0 473	
SPE		4	7 55 000					131 863	0 436	
1118 SPZ		4	7 55 000	1	1387			113 0178	0 375	75 0
SPN		4	7 55 000					112 1968	0 496	
SPE		4	7 55 000					106 2634	0 377	
1119 SPZ		4	7 55 000	0	7700			119 1771	0 437	75 5
SPN		4	7 55 000					106 9796	0 473	
SPE		4	7 55 000					131 863	0 436	
1120 SPZ		4	7 55 000	1	0234			113 0178	0 375	75 3
SPN		4	7 55 000					112 1968	0 496	
SPE		4	7 55 000					106 2634	0 377	
1121 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	75 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1122 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 1
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1123 SPZ		4	7 55 000	0	7700			120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1124 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1125 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1126 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1127 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1128 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1129 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1130 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1131 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1132 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1133 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1134 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1135 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1136 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1137 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1138 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1139 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1140 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1141 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1142 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1143 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1144 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101 8267	0 431	
SPE		4	7 55 000					121 0679	0 441	
1145 SPZ		4	7 55 000	0	0313	WWVB		120 1829	0 504	74 0
SPN		4	7 55 000					90 1454	0 424	
SPE		4	7 55 000					105 5084	0 497	
1146 SPZ		4	7 55 000	1	1387			93 7682	0 489	74 0
SPN		4	7 55 000					101		

Table 3a (continued)

Seismogram	Starting Date	Time	Correction (sec)	Seismometer Orientation (deg)	Sensitivity (volts m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Back Azimuth (deg)	
									Sensitivity (volts m sec)	Pendulum Period (sec)
1127 1 14	SPN	17 SEP 1988	261 4 7 55 000	0 0000 NONE	13 00	689 6237	0 063	19 6	248 3	68 2
	SPE		4 7 55 000	..	77 00	763 6659	1 032	1 294	..	..
	SPZ		4 7 55 000	..	..	719 0599	1 003	1 236	..	..
1128	SPN		4 7 55 000	0 0000	13 00	505 6474	0 902	1 454	14 4	72 9
	SPE		4 7 55 000	..	77 00	694 0557	0 551	0 681	..	..
	SPZ		4 7 55 000	..	..	624 0925	0 864	1 000	..	..
1129	SPN		4 7 55 000	0 0000	13 00	576 6406	1 042	0 325	8 8	251 5
	SPE		4 7 55 000	..	77 00	554 5508	0 102	0 314	..	..
	SPZ		4 7 55 000	..	..	553 7008	1 042	0 321	..	..
1130	SPN		4 7 55 000	0 0000	13 00	564 8539	1 147	1 960	5 2	253 7
	SPE		4 7 55 000	..	77 00	565 5809	1 031	1 610	..	..
	SPZ		4 7 55 000	..	..	566 3342	1 351	2 205	..	..
1102 1 22	SPZ		4 6 20 000	1 1465 WWVB	13 00	36 2929	0 470	0 386	332 1	281 0
	SPN		4 6 20 000	..	77 00	102 6773	0 511	0 406	..	..
	SPE		4 6 20 000	..	..	111 5023	0 517	0 434	..	..
1103	SPZ		4 6 20 000	1 0918	13 00	89 6815	0 487	0 444	328 1	281 3
	SPN		4 6 20 000	..	77 00	110 1595	0 477	0 485	..	..
	SPE		4 6 20 000	..	..	101 5023	0 479	0 444	..	..
1104	SPZ		4 6 20 000	1 1074	13 00	111 6818	0 457	0 463	323 5	281 6
	SPN		4 6 20 000	..	77 00	110 8799	0 494	0 503	..	..
	SPE		4 6 20 000	..	..	109 8537	0 512	0 514	..	..
1105	SPZ		4 6 20 000	1 0000	13 00	92 7538	0 415	0 356	320 7	281 8
	SPN		4 6 20 000	..	77 00	85 1736	0 526	0 440	..	..
	SPE		4 6 20 000	..	..	90 0845	0 488	0 382	..	..
1106	SPZ		4 6 20 000	0 1230	13 00	106 5799	0 423	0 348	317 5	282 1
	SPN		4 6 20 000	..	77 00	110 7771	0 512	0 428	..	..
	SPE		4 6 20 000	..	..	103 4123	0 515	0 418	..	..
1107	SPZ		4 6 20 000	1 0078	13 00	120 8491	0 427	0 361	314 8	282 4
	SPN		4 6 20 000	..	77 00	114 9841	0 506	0 446	..	..
	SPE		4 6 20 000	..	..	117 5121	0 490	0 419	..	..
1108	SPZ		4 6 20 000	0 7998	13 00	105 0726	0 412	0 329	311 3	282 6
	SPN		4 6 20 000	..	77 00	132 8554	0 535	0 470	..	..
	SPE		4 6 20 000	..	..	109 5664	0 535	0 450	..	..
1109	SPZ		4 6 20 000	0 7539	13 00	106 0889	0 471	0 383	308 0	282 8
	SPN		4 6 20 000	..	77 00	114 8958	0 468	0 415	..	..
	SPE		4 6 20 000	..	..	106 2634	0 449	0 377	..	..
1110	SPZ		4 6 20 000	0 2158	13 00	119 1771	0 385	0 437	304 6	283 3
	SPN		4 6 20 000	..	77 00	106 9796	0 473	0 453	..	..
	SPE		4 6 20 000	..	..	131 8896	0 436	0 567	..	..
1111	SPZ		4 6 20 000	1 0234	13 00	113 0178	0 375	0 327	309 8	283 6
	SPN		4 6 20 000	..	77 00	112 1968	0 496	0 423	..	..
	SPE		4 6 20 000	..	..	120 1829	0 504	0 419	..	..
1112	SPZ		4 6 20 000	0 7695	13 00	90 1454	0 424	0 320	297 8	283 9
	SPN		4 6 20 000	..	77 00	105 5084	0 497	0 430	..	..
	SPE		4 6 20 000	..	..	93 7682	0 489	0 431	..	..

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a. (continued)

Seismogram	Date	Starting Time d h m s	Time (sec)	Seismometer		Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
				Correction (sec)	Orientation (deg)					
1113 1 22 SP2	17 SEP 1988	261 4 6 20 000	1 1621 WWVB	13.00	98.8521	0.441	0.373	293.3	283.9	101.4
	SPN	4 6 20 000	110.1773	0.506	0.382					
1120	SPE	4 6 20 000	0.555	0.459						
	SPN	4 6 20 000	0.500	0.429	268.4	286.5				104.3
	SP2	4 6 20 000	0.464	0.373						
	SPZ	4 6 20 000	0.378	0.300						
1121	SPN	4 6 20 000	0.471	0.362	264.7	287.0				104.8
	SPE	4 6 20 000	0.400	0.400						
	SP2	4 6 20 000	0.386	0.339						
1125	SPN	4 6 20 000	0.641	0.987	250.8	289.0				107.0
	SPE	4 6 20 000	1.033	1.646						
	SP2	4 6 20 000	1.078	1.078						
1126	SPN	4 6 20 000	0.692	1.260	247.0	289.5				107.5
	SPE	4 6 20 000	0.976	0.976						
	SP2	4 6 20 000	0.681	0.681						
1127	SPN	4 6 20 000	0.864	1.000						
	SPE	4 6 20 000	1.063	243.3	289.6					107.6
	SP2	4 6 20 000	1.032	1.294						
1128	SPN	4 6 20 000	1.003	1.236						
	SPE	4 6 20 000	1.454	240.0	290.6					108.7
	SP2	4 6 20 000	0.902	0.902						
	SPZ	4 6 20 000	0.681	0.681						
1129	SPN	4 6 20 000	0.864	1.000						
	SPE	4 6 20 000	1.042	0.725	235.4	291.3				109.4
	SP2	4 6 20 000	1.042	0.314						
1130	SPN	4 6 20 000	1.042	0.321						
	SPE	4 6 20 000	1.147	1.960	232.7	291.9				110.1
	SP2	4 6 20 000	1.031	1.610						
	SPZ	4 6 20 000	1.351	2.205						
1101 1 23	SP2	8 2 35.000	0.7041 GOES	113.0980	0.494	0.465	426.8	275.9	92.3	
	SPN	8 2 35.000	115.7602	0.480	0.426					
	SPE	8 2 35.000	105.1737	0.392	0.343					
	SP2	8 2 35.000	96.2829	0.470	0.386	423.9	276.1			92.5
	SPN	8 2 35.000	102.6773	0.511	0.406					
1103	SPE	8 2 35.000	100.1123	0.517	0.434					
	SP2	8 2 35.000	98.6815	0.487	0.444	419.7	276.3			92.7
	SPN	8 2 35.000	110.1585	0.477	0.485					
1102	SPE	8 2 35.000	92.7538	0.415	0.356	412.1	276.6			93.1
	SP2	8 2 35.000	101.5023	0.479	0.444					
	SPN	8 2 35.000	111.6818	0.457	0.463	415.0	276.5			92.9
1104	SPE	8 2 35.000	110.8788	0.494	0.503					
	SP2	8 2 35.000	108.8537	0.512	0.514					
	SPN	8 2 35.000	110.7771	0.512	0.428					
1105	SPE	8 2 35.000	103.4123	0.515	0.418					
	SP2	8 2 35.000	113.00	0.426	0.440					
	SPN	8 2 35.000	77.00	0.488	0.382					
1106	SPE	8 2 35.000	106.5799	0.423	0.348	408.7	276.8			93.3
	SP2	8 2 35.000	110.7771	0.512	0.428					
	SPN	8 2 35.000	77.00	0.418	0.418					

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3a (continued)

Seismogram	Date	Starting Time d h m s	Time (sec)	Correction (sec)	Seismometer Orientation (deg)	Sensitivity (volts m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)	
1107 1 23 SPZ	17 SEP 1988	261	8 2 35 00.0	1 0234	WWVB	13.00	120.8491	0.427	405.9	276.9	93.5	
" " SPE	" "	" "	8 2 35 00.0	" "	"	77.00	114.9841	0.506	0.446	" "	" "	
1108 " SPZ	" "	" "	8 2 35 00.0	0.7695	"	"	117.5121	0.490	0.419	" "	" "	
" " SPN	" "	" "	8 2 35 00.0	" "	"	"	105.0776	0.412	0.329	277.1	93.7	
" " SPE	" "	" "	8 2 35 00.0	" "	"	"	122.8554	0.535	0.470	" "	" "	
1109 " SPZ	" "	" "	8 2 35 00.0	0.7383	"	"	109.5664	0.535	0.450	" "	" "	
" " SPE	" "	" "	8 2 35 00.0	" "	"	77.00	105.0889	0.471	0.383	398.9	277.2	
" " SPZ	" "	" "	8 2 35 00.0	" "	"	77.00	114.8958	0.468	0.415	" "	" "	
1110 " SPZ	" "	" "	8 2 35 00.0	0.2305	"	"	106.2634	0.449	0.377	" "	" "	
" " SPN	" "	" "	8 2 35 00.0	" "	"	"	119.1771	0.385	0.437	395.2	277.4	
" " SPE	" "	" "	8 2 35 00.0	" "	"	"	106.9796	0.473	0.453	" "	" "	
1111 " SPZ	" "	" "	8 2 35 00.0	1.0469	"	"	131.8896	0.436	0.567	" "	" "	
" " SPN	" "	" "	8 2 35 00.0	" "	"	"	113.0178	0.375	0.327	391.2	277.6	
" " SPE	" "	" "	8 2 35 00.0	" "	"	"	112.1968	0.496	0.423	" "	" "	
1112 " SPZ	" "	" "	8 2 35 00.0	0.7227	"	"	120.1829	0.504	0.419	" "	" "	
" " SPN	" "	" "	8 2 35 00.0	" "	"	"	90.1454	0.424	0.320	388.0	277.8	
" " SPE	" "	" "	8 2 35 00.0	" "	"	77.00	105.5084	0.497	0.430	" "	" "	
1113 " SPZ	" "	" "	8 2 35 00.0	1.2070	"	"	93.7682	0.489	0.431	" "	" "	
" " SPN	" "	" "	8 2 35 00.0	" "	"	"	121.0679	0.441	0.373	383.6	277.7	
" " SPE	" "	" "	8 2 35 00.0	" "	"	"	98.8521	0.506	0.382	" "	" "	
1121 " SPZ	" "	" "	8 2 35 00.0	" "	"	"	77.00	110.1773	0.555	0.459	" "	" "
" " SPN	" "	" "	8 2 35 00.0	0.0000	"	"	13.00	105.5121	0.471	0.362	353.2	279.5
" " SPE	" "	" "	8 2 35 00.0	" "	"	"	77.00	101.6663	0.507	0.400	" "	" "
1125 " SPN	" "	" "	8 2 35 00.0	0.0313	"	"	13.00	110.6077	0.386	0.339	" "	" "
" " SPE	" "	" "	8 2 35 00.0	" "	"	"	77.00	59.0.0545	0.641	0.987	338.1	280.6
1126 " SPZ	" "	" "	8 2 35 00.0	0.0234	"	"	77.00	54.2.9311	1.033	1.646	" "	" "
" " SPE	" "	" "	8 2 35 00.0	0.0000	"	"	77.00	44.2.2431	1.692	1.078	" "	" "
1127 " SPZ	" "	" "	8 2 35 00.0	"	"	"	77.00	83.3.3716	0.976	1.260	334.0	280.8
" " SPN	" "	" "	8 2 35 00.0	"	"	"	77.00	47.6.0570	1.005	1.227	" "	" "
" " SPE	" "	" "	8 2 35 00.0	"	"	"	77.00	59.6.3226	0.673	0.842	" "	" "
1129 " SPZ	" "	" "	8 2 35 00.0	0.0000	NONE	"	13.00	68.9.6237	0.838	1.063	330.3	280.8
" " SPN	" "	" "	8 2 35 00.0	"	"	"	77.00	76.3.6659	1.032	1.294	" "	" "
" " SPE	" "	" "	8 2 35 00.0	"	"	"	77.00	71.9.0599	1.003	1.236	" "	" "
1128 " SPZ	" "	" "	8 2 35 00.0	0.0000	"	"	13.00	50.5.6474	0.902	1.454	326.4	281.4
" " SPN	" "	" "	8 2 35 00.0	"	"	"	77.00	69.4.0557	0.551	0.681	" "	" "
" " SPE	" "	" "	8 2 35 00.0	"	"	"	77.00	62.4.0928	0.864	1.000	" "	" "
1130 " SPZ	" "	" "	8 2 35 00.0	0.0000	"	"	13.00	57.6.6406	1.042	0.325	321.3	281.8
" " SPN	" "	" "	8 2 35 00.0	"	"	"	77.00	55.4.5508	1.042	0.314	" "	" "
" " SPE	" "	" "	8 2 35 00.0	0.0000	"	"	13.00	55.3.7008	1.042	0.321	" "	" "
1131 " SPZ	" "	" "	8 2 35 00.0	"	"	"	77.00	56.4.8539	1.147	1.980	318.2	282.1
" " SPN	" "	" "	8 2 35 00.0	"	"	"	77.00	56.5.5809	1.031	1.610	" "	" "
" " SPE	" "	" "	8 2 35 00.0	"	"	"	77.00	56.6.3342	1.351	2.205	" "	" "

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b  
Seismogram Constants for Deployment Two

Table 3b. Seismogram Constants for Deployment Two

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Sensitivity	Pendulum	Damping	Back
		d h m s	(sec)	(sec)	Orientation	(volts/m/sec)	Period	Ratio	Azimuth
							(sec)	(deg)	(deg)
1211	2-04	SPN	24 SEP 1988	268	8 5 55.000	-0.1157 GOES	-15.00	113.1000	0.453
		SPE			8 5 55.000	"	75.00	113.7880	0.357
		SPZ			8 5 55.000	"	-	101.4580	0.426
1212		SP2			8 5 55.000	-0.0169	-	95.8404	0.382
		SPN			8 5 55.000	"	-15.00	104.6157	0.457
		SPE			8 5 55.000	"	75.00	98.2108	0.501
1213		SPZ			8 5 55.000	0.2305 WWVB	-	119.9548	0.434
		SPN			8 5 55.000	"	-15.00	98.0937	0.509
		SPE			8 5 55.000	"	75.00	111.1635	0.542
1214		SPZ			8 5 55.000	-0.2773	-	89.0961	0.427
		SPN			8 5 55.000	"	-15.00	104.5607	0.501
		SPE			8 5 55.000	"	75.00	91.2114	0.488
1215		SPZ			8 5 55.000	0.0319	-	113.8685	0.376
		SPN			8 5 55.000	"	-15.00	112.8435	0.497
		SPE			8 5 55.000	"	75.00	120.7841	0.486
1216		SPZ			8 5 55.000	-0.1982	-	104.9737	0.405
		SPN			8 5 55.000	"	-15.00	106.2555	0.509
		SPE			8 5 55.000	"	75.00	104.0743	0.504
1217		SPZ			8 5 55.000	-0.2305	-	106.3744	0.425
		SPN			8 5 55.000	"	-15.00	115.5783	0.468
		SPE			8 5 55.000	"	75.00	107.6735	0.417
		SPZ			8 5 55.000	-0.2539	-	102.4046	0.445
1218		SPZ			8 5 55.000	"	-15.00	118.5301	0.415
		SPN			8 5 55.000	"	75.00	107.1711	0.538
		SPE			8 5 55.000	"	-	109.2437	0.534
1219		SPZ			8 5 55.000	-0.2773	-	109.3567	0.422
		SPN			8 5 55.000	"	-15.00	112.1432	0.507
		SPE			8 5 55.000	"	75.00	106.2984	0.511
		SPZ			8 5 55.000	0.0156	-	92.7538	0.415
1220		SPN			8 5 55.000	"	-15.00	85.1736	0.526
		SPE			8 5 55.000	"	75.00	90.0945	0.488
		SPZ			8 5 55.000	0.0156	-	120.8625	0.428
1221		SPN			8 5 55.000	"	-15.00	117.0131	0.509
		SPE			8 5 55.000	"	75.00	115.8302	0.464
		SPZ			8 5 55.000	0.1309	-	99.5213	0.444
1222		SPN			8 5 55.000	"	-15.00	110.8653	0.477
		SPE			8 5 55.000	"	75.00	100.4654	0.440
		SPZ			8 5 55.000	0.2070	-	99.9986	0.468
1223		SPN			8 5 55.000	"	-15.00	105.2339	0.509
		SPE			8 5 55.000	"	75.00	103.0961	0.407
1225		SPZ			8 5 55.000	-0.7251 GOES	-15.00	115.7602	0.480
		SPN			8 5 55.000	"	75.00	105.1737	0.392
		SPE			8 5 55.000	"	-	113.0980	0.494
1227		SPZ			8 5 55.000	0.2128	-15.00	119.8034	0.426
		SPN			8 5 55.000	"	75.00	106.0839	0.472
		SPE			8 5 55.000	"	-	118.8165	0.494

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Seismometer		Pendulum	Damping	Azimuth	Azimuth
				Correction	Orientation				
				(sec)	(deg)	Sensitivity	Period	(km)	(deg)
						(volts/m sec)	(sec)		
11228	2-04	SPN	24 SEP 1988	26.8	8 55.000	0.0078 WWVB	-15.00	107.8404	0.474
		SPE		"	8 55.000	"	75.00	"	"
		SPZ		"	8 55.000	"	-	115.2925	0.469
		SPN		"	8 55.000	0.0244 GOES	-15.00	100.8098	0.459
		SPE		"	8 55.000	"	75.00	98.5121	0.471
		SPZ		"	8 55.000	"	-	101.6663	0.507
		SPN		"	8 6 15.000	-0.8082 WWVB	-15.00	110.6077	0.386
		SPE		"	8 6 15.000	"	75.00	109.6534	0.490
		SPZ		"	8 6 15.000	"	-	102.3860	0.485
		SPN		"	8 6 15.000	"	97.2723	0.422	0.414
		SPE		"	8 5 55.000	0.0000 NONE	-15.00	98.5043	0.506
		SPZ		"	8 5 55.000	"	75.00	89.4856	0.487
		SPN		"	8 5 55.000	"	-	89.6476	0.416
		SPE		"	8 5 55.000	-1.0234 WWVB	-15.00	107.4674	0.488
		SPZ		"	8 5 55.000	"	75.00	105.9664	0.488
		SPN		"	8 5 55.000	"	-	114.1378	0.468
		SPE		"	8 5 55.000	0.0048 GOES	-15.00	102.6012	0.516
		SPZ		"	8 5 55.000	"	75.00	114.3616	0.476
		SPN		"	8 5 55.000	"	-	107.8076	0.391
		SPE		"	8 5 55.000	-0.2211	-15.00	78.6 2735	0.610
		SPZ		"	8 5 55.000	"	75.00	75.2 12228	0.554
		SPN		"	8 5 55.000	"	-	71.5 6757	0.652
		SPE		"	8 5 55.000	-0.0156 WWVB	-15.00	50.902	1.454
		SPZ		"	8 5 55.000	"	75.00	69.4 0557	0.551
		SPN		"	8 5 55.000	"	-	62.4 0928	0.864
		SPE		"	8 5 55.000	0.1777	-15.00	74.3 4758	1.024
		SPZ		"	8 5 55.000	"	75.00	70.6 5759	0.938
		SPN		"	8 5 55.000	"	-	68.7 1599	1.007
		SPE		"	8 5 55.000	0.1992	-15.00	62.2 2807	0.978
		SPZ		"	8 5 55.000	"	75.00	69.6 1515	1.041
		SPN		"	8 5 55.000	"	-	83.5 2012	0.680
		SPE		"	5 59 55.000	-0.1038 GOES	-15.00	113.1000	0.453
		SPZ		"	5 59 55.000	"	75.00	113.7880	0.357
		SPN		"	5 59 55.000	"	-	101.4580	0.392
		SPE		"	5 59 55.000	-0.0153	-15.00	95.8404	0.457
		SPZ		"	5 59 55.000	"	75.00	104.6157	0.501
		SPN		"	5 59 55.000	"	-	104.493	0.492
		SPE		"	5 59 55.000	0.1992 WWVB	-15.00	119.9548	0.434
		SPZ		"	5 59 55.000	"	75.00	119.9548	0.361
		SPN		"	5 59 55.000	"	-	86.5	86.5
		SPE		"	5 59 55.000	-0.2461	-15.00	98.0837	0.509
		SPZ		"	5 59 55.000	"	75.00	111.1635	0.542
		SPN		"	5 59 55.000	"	-	89.0861	0.427
		SPE		"	5 59 55.000	"	75.00	104.5607	0.501
		SPZ		"	5 59 55.000	"	-	91.2114	0.488
		SPN		"	5 59 55.000	0.0391	-15.00	113.8695	0.376
		SPE		"	5 59 55.000	"	75.00	112.8435	0.497
		SPZ		"	5 59 55.000	"	-	120.7941	0.486

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Seismometer		Pendulum	Damping	Back
				Correction	Orientation			
			(sec)	(deg)	(vclts/m sec)	(sec)	(km)	(deg)
1216 2-07	SPZ	24 SEP 1988	26.8	5 59	55.000	-0.1855	WWVB	-
	SPN			5 59	55.000	-	104.9757	0.405
	SPE			5 59	55.000	-15.00	106.2555	0.509
1217	SPN			5 59	55.000	75.00	104.0743	0.504
	SPE			5 59	55.000	-15.00	106.3744	0.468
	SPZ			5 59	55.000	75.00	115.5793	0.468
1218	SPZ			5 59	55.000	-	107.6735	0.445
	SPN			5 59	55.000	-0.2227	102.4046	0.415
	SPE			5 59	55.000	-15.00	119.5301	0.538
1219	SPZ			5 59	55.000	75.00	107.1711	0.534
	SPN			5 59	55.000	-0.2617	109.2437	0.422
	SPE			5 59	55.000	-15.00	112.1432	0.507
1220	SPZ			5 59	55.000	75.00	106.2984	0.511
	SPN			5 59	55.000	0.0156	92.7538	0.415
	SPE			5 59	55.000	-15.00	85.1736	0.526
1221	SPZ			5 59	55.000	75.00	90.0945	0.440
	SPN			5 59	55.000	-	120.8625	0.488
	SPE			5 59	55.000	-15.00	117.0131	0.509
1222	SPZ			5 59	55.000	75.00	115.8302	0.490
	SPN			5 59	55.000	0.5436	111.8476	0.457
	SPE			5 59	55.000	-15.00	112.9581	0.493
1223	SPZ			5 59	55.000	75.00	111.3782	0.510
	SPN			5 59	55.000	0.1074	WWVB	-
	SPE			5 59	55.000	-15.00	89.5213	0.485
1224	SPZ			5 59	55.000	75.00	110.9653	0.477
	SPN			5 59	55.000	0.1889	100.4654	0.480
	SPE			5 59	55.000	-15.00	99.9986	0.468
1225	SPZ			5 59	55.000	75.00	111.2339	0.509
	SPN			5 59	55.000	-	105.0961	0.514
	SPE			5 59	55.000	-15.00	106.034	0.441
1226	SPZ			5 59	55.000	75.00	113.0980	0.494
	SPN			5 59	55.000	0.6511	GOES	-
	SPE			5 59	55.000	-15.00	115.7602	0.480
1227	SPZ			5 59	55.000	75.00	105.1737	0.392
	SPN			5 59	55.000	-	105.2339	0.343
	SPE			5 59	55.000	-15.00	106.034	0.426
1228	SPZ			5 59	55.000	75.00	103.0961	0.514
	SPN			5 59	55.000	-	106.0839	0.472
	SPE			5 59	55.000	-15.00	113.0980	0.494
1229	SPZ			5 59	55.000	75.00	107.8404	0.474
	SPN			5 59	55.000	0.0078	WWVB	-
	SPE			5 59	55.000	-15.00	115.2925	0.469
1230	SPZ			5 59	55.000	75.00	100.8098	0.459
	SPN			5 59	55.000	0.0547	-	-
	SPE			5 59	55.000	-15.00	145.0600	0.560
1231	SPZ			5 59	55.000	75.00	145.0600	0.540
	SPN			5 59	55.000	0.0212	GOES	-
	SPE			5 59	55.000	-15.00	135.9900	0.480
1232	SPZ			5 59	55.000	75.00	101.8663	0.507
	SPN			5 59	55.000	0.0000	NONE	-
	SPE			5 59	55.000	-15.00	110.6077	0.386
	SPZ			5 59	55.000	75.00	109.6534	0.495
				5 59	55.000	-	102.3860	0.485
				5 59	55.000	-	97.2723	0.422

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time			Correction (sec)	Seismometer Orientation (deg)	Sensitivity (volts/m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
		d	h	m								
1233	2-07	SPN	24	SEP	1988	268	5 59 55.000	0.0000 NONE	-15.00	88.5043	0.506	0.425
		SPE					5 59 55.000	"	75.00	89.4856	0.487	0.379
		SPZ					5 59 55.000	"		99.6476	0.416	0.340
1234	"	SPN					5 59 55.000	-1.0469 WWVB	-15.00	107.4676	0.488	0.424
		SPE					5 59 55.000	"	75.00	105.9664	0.488	0.453
		SPZ					5 59 55.000	"		114.1378	0.468	0.487
1236	"	SPN					5 59 55.000	-0.1919 GOES	-15.00	786.2735	0.610	0.823
		SPE					5 59 55.000	"	75.00	752.1223	0.554	1.952
		SPZ					5 59 55.000	"		715.6757	0.652	0.809
1238	"	SPN					5 59 55.000	-0.0313 WWVB	-15.00	505.6474	0.902	1.454
		SPE					5 59 55.000	"	75.00	694.0557	0.551	0.681
		SPZ					5 59 55.000	"		624.0928	0.864	1.000
1240	"	SPN					5 59 55.000	0.1717	-15.00	743.4758	1.024	1.293
		SPE					5 59 55.000	"	75.00	706.5759	0.938	1.117
		SPZ					5 59 55.000	"		697.1599	1.007	1.238
1241	"	SPN					5 59 55.000	-0.1699	-15.00	622.2807	0.978	1.277
		SPE					5 59 55.000	"	75.00	696.1515	1.041	1.315
		SPZ					5 59 55.000	"		835.2012	0.680	0.800
1241	2-08	SPN					3 59 55.000	-0.0919 GOES	-15.00	113.1000	0.453	0.475
		SPE					3 59 55.000	"	75.00	113.7880	0.357	0.426
		SPZ					3 59 55.000	"		101.4590	0.392	0.338
1242	"	SPN					3 59 55.000	-0.0135	-15.00	95.8404	0.457	0.449
		SPE					3 59 55.000	"	75.00	104.6157	0.501	0.539
		SPZ					3 59 55.000	"		98.2109	0.493	0.492
1243	"	SPN					3 59 55.000	0.1689 WWVB	-15.00	119.9548	0.434	0.361
		SPE					3 59 55.000	"	75.00	98.0937	0.509	0.384
		SPZ					3 59 55.000	"		95.8404	0.457	0.449
1244	"	SPN					3 59 55.000	-0.2158	-15.00	104.6157	0.501	0.539
		SPE					3 59 55.000	"	75.00	98.2109	0.493	0.492
		SPZ					3 59 55.000	"		104.5607	0.501	0.492
1245	"	SPN					3 59 55.000	0.0313	-15.00	91.2114	0.488	0.418
		SPE					3 59 55.000	"	75.00	113.8695	0.376	0.333
		SPZ					3 59 55.000	"		111.1635	0.542	0.457
1246	"	SPN					3 59 55.000	-0.1846	-15.00	89.0961	0.427	0.320
		SPE					3 59 55.000	"	75.00	104.9737	0.401	0.434
		SPZ					3 59 55.000	"		104.5607	0.501	0.492
1247	"	SPN					3 59 55.000	-0.1846	-15.00	106.2555	0.509	0.416
		SPE					3 59 55.000	"	75.00	104.0743	0.504	0.435
		SPZ					3 59 55.000	"		112.8435	0.487	0.425
1248	"	SPN					3 59 55.000	-0.1689	-15.00	120.7941	0.486	0.401
		SPE					3 59 55.000	"	75.00	104.9737	0.405	0.328
		SPZ					3 59 55.000	"		104.5607	0.501	0.492
1249	"	SPN					3 59 55.000	-0.2002	-15.00	102.4046	0.415	0.326
		SPE					3 59 55.000	"	75.00	119.5301	0.538	0.463
		SPZ					3 59 55.000	"		106.3744	0.468	0.385
1249	"	SPN					3 59 55.000	-0.2539	-15.00	115.5793	0.468	0.417
		SPE					3 59 55.000	"	75.00	107.6735	0.445	0.377
		SPZ					3 59 55.000	"		102.4046	0.415	0.326
1250	"	SPN					3 59 55.000	-0.2539	-15.00	107.1711	0.534	0.444
		SPE					3 59 55.000	"	75.00	108.2437	0.422	0.357
		SPZ					3 59 55.000	"		112.1432	0.507	0.423
1251	"	SPN					3 59 55.000	-0.2539	-15.00	106.2984	0.511	0.436

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time d h m s	Time Correction (sec)	Seismometer Orientation (deg)			Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
				Seismometer	Seismometer	Pendulum					
1220 2-08	SP2	24 SEP 1988 268	3 59 55.000 0 00078 WWVB	-	92.7538	0.415	0.356	0.440	47.7	224.2	43.0
"	SPE	"	3 59 55.000 " "	-15.00	85.1736	0.526	0.440	0.488	75.00	"	"
1221	SP2	"	3 59 55.000 0.0078	-75.00	90.0945	0.488	0.382	0.428	120.8625	44.2	36.6
"	SPN	"	3 59 55.000 " "	-15.00	117.0131	0.509	0.464	0.366	117.0131	"	"
"	SPE	"	3 59 55.000 " "	-75.00	115.8302	0.490	0.420	0.485	99.5213	47.0	28.2
1223	SP2	"	3 59 55.000 0.0996	-15.00	110.9653	0.477	0.487	0.477	100.4654	0.440	"
"	SPN	"	3 59 55.000 " "	-75.00	100.4654	0.480	0.440	0.440	89.8986	0.394	47.7
"	SPE	"	3 59 55.000 0.1689	-15.00	105.2339	0.468	0.468	0.407	105.0961	0.514	"
1224	SP2	"	3 59 55.000 " "	-75.00	105.0961	0.514	0.438	0.438	113.0980	0.494	16.0
"	SPN	"	3 59 55.000 " "	-15.00	115.7602	0.480	0.424	0.424	105.1737	0.392	"
"	SPE	"	3 59 55.000 " "	-75.00	105.1737	0.392	0.343	0.343	107.8404	0.474	55.2
1228	SPN	"	3 59 55.000 -0 0156 WWVB	-15.00	115.2925	0.469	0.430	0.430	115.2925	0.459	6.0
"	SPE	"	3 59 55.000 " "	-75.00	100.8098	0.459	0.398	0.398	100.8098	0.465	"
1225	SP2	"	3 59 55.000 -0.5772 GOES	-15.00	145.0600	0.560	0.400	0.400	145.0600	0.400	3.0
"	SPN	"	3 59 55.000 0.0537	-15.00	75.00	0.540	0.400	0.400	75.00	0.540	"
"	SPE	"	3 59 55.000 " "	-75.00	135.9800	0.480	0.400	0.400	105.6000	0.417	186.4
1229	SP2	"	3 59 55.000 0.0179 GOES	-15.00	88.5121	0.471	0.362	0.362	101.6663	0.507	"
"	SPN	"	3 59 55.000 " "	-75.00	110.6077	0.586	0.339	0.339	110.6077	0.400	"
"	SPE	"	3 59 55.000 0.0000 NONE	-15.00	109.6534	0.490	0.405	0.405	109.6534	0.405	"
"	SP2	"	3 59 55.000 " "	-75.00	102.3860	0.416	0.414	0.414	102.3860	0.422	356.2
1231	SPN	"	3 59 55.000 0.0179 GOES	-15.00	88.5121	0.471	0.362	0.362	88.5121	0.471	61.4
"	SPE	"	3 59 55.000 " "	-75.00	101.6663	0.507	0.400	0.400	101.6663	0.507	"
1232	SP2	"	3 59 55.000 0.0000	-15.00	110.6077	0.586	0.339	0.339	110.6077	0.400	"
"	SPN	"	3 59 55.000 0.0000	-15.00	109.6534	0.490	0.405	0.405	109.6534	0.405	"
"	SPE	"	3 59 55.000 " "	-75.00	135.9800	0.480	0.400	0.400	135.9800	0.400	"
"	SP2	"	3 59 58.000 " "	-15.00	87.2723	0.422	0.338	0.338	87.2723	0.422	356.2
1233	SPN	"	3 59 58.000 0.0000	-15.00	98.5043	0.506	0.425	0.425	98.5043	0.506	"
"	SPE	"	3 59 58.000 " "	-75.00	89.4856	0.487	0.379	0.379	89.4856	0.487	"
"	SP2	"	3 59 58.000 0.0000	-15.00	89.6476	0.416	0.340	0.340	89.6476	0.416	353.4
"	SPN	"	3 59 58.000 " "	-75.00	107.8076	0.488	0.424	0.424	107.8076	0.488	"
"	SPE	"	3 59 55.000 -1 0469 WWVB	-15.00	105.9674	0.488	0.453	0.453	105.9674	0.488	348.8
1234	SP2	"	3 59 55.000 " "	-75.00	105.9674	0.488	0.453	0.453	105.9674	0.488	"
"	SPN	"	3 59 55.000 0.0000	-15.00	114.1378	0.468	0.487	0.487	114.1378	0.468	"
"	SPE	"	3 59 55.000 0.0035 GOES	-15.00	102.6012	0.516	0.418	0.418	102.6012	0.516	"
"	SP2	"	3 59 55.000 " "	-75.00	114.3616	0.476	0.416	0.416	114.3616	0.476	"
"	SPN	"	3 59 55.000 " "	-15.00	107.8076	0.391	0.339	0.339	107.8076	0.391	"
"	SPE	"	3 59 55.000 0.1626	-15.00	786.2735	0.610	0.823	0.823	786.2735	0.610	344.5
1236	SP2	"	3 59 55.000 " "	-75.00	752.1228	0.554	1.952	1.952	752.1228	0.554	"
"	SPN	"	3 59 55.000 " "	-15.00	715.6757	0.652	0.809	0.809	715.6757	0.652	"
"	SPE	"	3 59 55.000 0.1717 WWVB	-15.00	743.4758	1.024	1.293	1.293	743.4758	1.024	347.0
"	SP2	"	3 59 55.000 " "	-75.00	706.5759	0.938	1.117	1.117	706.5759	0.938	"
"	SPN	"	3 59 55.000 -0.1465	-15.00	697.1599	1.07	1.238	1.238	697.1599	1.07	"
1241	SP2	"	3 59 55.000 " "	-75.00	622.2807	0.978	1.277	1.277	622.2807	0.978	336.3
"	SPN	"	3 59 55.000 " "	-75.00	696.1515	1.041	1.315	1.315	696.1515	1.041	"
"	SPE	"	3 59 55.000 " "	-75.00	835.2012	0.680	0.900	0.900	835.2012	0.680	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Correction		Seismometer	Orientation	Sensitivity	Pendulum	Damping	Azimuth		
				d	h	m	s	(sec)	(deg)	Period	(volts·m/sec)	(deg)	
1211	2-09	SPN	24 SEP 1988	268	4	1	55	000	-0.0919	GOES	-15.00	113.1000	0.453
1211	2-09	SPE			4	1	55	000	..	..	75.00	113.7880	0.357
1212	2-09	SP2			4	1	55	000	-0.0135	..	-	101.4590	0.392
1212	2-09	SP2			4	1	55	000	..	..	-	95.8404	0.457
1212	2-09	SPN			4	1	55	000	..	..	-15.00	104.6157	0.501
1213	2-09	SPE			4	1	55	000	..	..	75.00	98.2109	0.493
1213	2-09	SP2			4	1	55	000	0.1689	WWVB	..	119.8548	0.434
1213	2-09	SPN			4	1	55	000	..	..	-15.00	98.0937	0.508
1214	2-09	SPE			4	1	55	000	..	..	75.00	111.1635	0.542
1214	2-09	SP2			4	1	55	000	-0.2158	..	..	89.0961	0.427
1214	2-09	SPN			4	1	55	000	..	..	-15.00	104.5607	0.501
1215	2-09	SPE			4	1	55	000	..	..	75.00	91.2114	0.488
1215	2-09	SP2			4	1	55	000	0.0381	..	..	113.8695	0.376
1215	2-09	SPN			4	1	55	000	..	..	-15.00	112.8435	0.497
1216	2-09	SPE			4	1	55	000	..	..	75.00	120.7941	0.486
1216	2-09	SP2			4	1	55	000	C.1689	..	..	104.9737	0.405
1216	2-09	SPN			4	1	55	000	..	..	-15.00	106.2555	0.509
1217	2-09	SPE			4	1	55	000	-0.1924	..	75.00	104.0743	0.504
1217	2-09	SP2			4	1	55	000	..	..	-15.00	106.3744	0.668
1217	2-09	SPN			4	1	55	000	..	..	75.00	115.5783	0.468
1218	2-09	SPE			4	1	55	000	..	..	..	107.6735	0.445
1218	2-09	SP2			4	1	55	000	-0.2002	..	-15.00	102.4046	0.415
1218	2-09	SPN			4	1	55	000	..	..	75.00	119.5301	0.538
1219	2-09	SPE			4	1	55	000	..	..	..	107.1711	0.534
1219	2-09	SP2			4	1	55	000	-0.2539	..	..	108.2437	0.422
1219	2-09	SPN			4	1	55	000	..	..	-15.00	112.1432	0.507
1220	2-09	SPE			4	1	55	000	..	..	75.00	106.2984	0.511
1220	2-09	SP2			4	1	55	000	0.0078	..	..	92.7538	0.415
1220	2-09	SPN			4	1	55	000	..	..	-15.00	85.1736	0.526
1221	2-09	SPE			4	1	55	000	..	..	75.00	80.0945	0.488
1221	2-09	SP2			4	1	55	000	0.0078	..	..	120.8625	0.428
1221	2-09	SPN			4	1	55	000	..	..	-15.00	117.0131	0.509
1222	2-09	SPE			4	1	55	000	..	..	75.00	85.1736	0.440
1222	2-09	SP2			4	1	55	000	0.4825	GOES	..	111.8476	0.457
1222	2-09	SPN			4	1	55	000	..	..	-15.00	112.9581	0.483
1223	2-09	SPE			4	1	55	000	..	..	75.00	111.3782	0.510
1223	2-09	SP2			4	1	55	000	0.0996	WWVB	..	99.5213	0.485
1223	2-09	SPN			4	1	55	000	..	..	-15.00	110.9653	0.477
1225	2-09	SPE			4	1	55	000	..	..	75.00	100.4654	0.480
1225	2-09	SP2			4	1	55	000	0.5778	GOES	..	113.0980	0.494
1225	2-09	SPN			4	1	55	000	..	..	-15.00	115.7602	0.480
1227	2-09	SPE			4	1	55	000	0.1553	..	75.00	105.1737	0.392
1227	2-09	SP2			4	1	55	000	..	..	-15.00	119.6034	0.426
1227	2-09	SPN			4	1	55	000	..	..	75.00	106.0839	0.472
1227	2-09	SP2			4	1	55	000	..	..	..	118.8165	0.494

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Sensitivity	Pendulum	Damping	Distance	Azimuth	Back Azimuth
		dd h m s	(sec)	(deg)	(volts/m/sec)	(deg)	Period (sec)	Ratio	(km)	(deg)	(deg)
1228 2-09	SPN	24 SEP 1988	268 4	1 55.000	-0.0156 WWVB	-15.00	107.84(4	0.417	51.5	154.0	334.1
"	SPE	"	"	4 1 55.000	"	75.00	115.2925	0.468	0.430	"	"
"	SPZ	"	"	4 1 55.000	"	"	100.8098	0.459	0.399	"	"
1229	SPN	"	"	4 1 55.000	0.0615	-15.00	145.0600	0.560	0.400	54.8	152.0
"	SPE	"	"	4 1 55.000	"	75.00	145.0600	0.540	0.400	"	"
"	SPZ	"	"	4 1 55.000	"	"	135.9900	0.480	0.400	"	"
1231	SPN	"	"	4 1 55.000	0.0179 GOES	-15.00	98.5121	0.471	0.362	62.1	328.3
"	SPE	"	"	4 1 55.000	"	75.00	101.6663	0.507	0.400	"	"
"	SPZ	"	"	4 1 55.000	"	"	110.6077	0.386	0.339	"	"
1232	SPN	"	"	4 1 55.000	0.0000 NONE	-15.00	109.6534	0.490	0.405	66.5	146.9
"	SPE	"	"	4 1 55.000	"	75.00	102.3860	0.485	0.414	"	"
"	SPZ	"	"	4 1 55.000	"	"	97.2723	0.422	0.338	"	"
1233	SPN	"	"	4 1 55.000	0.0000	-15.00	98.5043	0.506	0.425	70.0	145.6
"	SPE	"	"	4 1 55.000	"	75.00	89.4856	0.487	0.379	"	"
"	SPZ	"	"	4 1 55.000	"	"	98.6476	0.416	0.340	"	"
1234	SPN	"	"	4 1 55.000	1.0615 WWVB	-15.00	107.4674	0.488	0.424	73.2	144.5
"	SPE	"	"	4 1 55.000	"	75.00	105.8664	0.488	0.453	"	"
"	SPZ	"	"	4 1 55.000	"	"	114.1378	0.468	0.487	"	"
1235	SPN	"	"	4 1 55.000	0.0035 GOES	-15.00	102.6012	0.516	0.418	76.6	143.8
"	SPE	"	"	4 1 55.000	"	75.00	114.3616	0.476	0.416	"	"
"	SPZ	"	"	4 1 55.000	"	"	107.8076	0.391	0.339	"	"
1236	SPN	"	"	4 1 55.000	-0.1626	-15.00	78.62735	0.610	0.823	81.5	142.7
"	SPE	"	"	4 1 55.000	"	75.00	75.21228	0.554	1.952	"	"
"	SPZ	"	"	4 1 55.000	"	"	715.6757	0.652	0.809	"	"
1240	SPN	"	"	4 1 55.000	0.1717 WWVB	-15.00	743.4758	1.024	1.293	29.6	139.7
"	SPE	"	"	4 1 55.000	"	75.00	706.5759	0.938	1.117	"	"
"	SPZ	"	"	4 1 55.000	"	"	687.1599	1.007	1.228	"	"
1241	SPN	"	"	4 1 55.000	0.1465	-15.00	622.2807	0.978	1.277	103.5	139.1
"	SPE	"	"	4 1 55.000	"	75.00	696.1515	1.041	1.315	"	"
"	SPZ	"	"	4 1 55.000	"	"	835.2012	0.680	0.900	"	"
1241 2-10	SPN	"	"	6 5 55.000	0.1038 GOES	-15.00	113.0473	0.453	0.475	2.1	142.4
"	SPE	"	"	6 5 55.000	"	75.00	113.7880	0.357	0.426	"	"
"	SPZ	"	"	6 5 55.000	"	"	101.4590	0.382	0.338	"	"
1242	SPN	"	"	6 5 55.000	0.0135	"	85.8404	0.457	0.449	6.1	131.2
"	SPE	"	"	6 5 55.000	"	"	104.6157	0.501	0.539	"	"
"	SPZ	"	"	6 5 55.000	"	"	98.2109	0.483	0.492	"	"
1243	SPZ	"	"	6 5 55.000	0.1892 WWVB	"	119.9548	0.434	0.361	10.1	127.9
"	SPN	"	"	6 5 55.000	"	-15.00	98.0837	0.508	0.384	"	"
"	SPE	"	"	6 5 55.000	"	75.00	111.1635	0.542	0.457	"	"
1244	SPZ	"	"	6 5 55.000	0.2461	"	88.0961	0.427	0.320	14.2	126.8
"	SPN	"	"	6 5 55.000	"	"	104.5607	0.501	0.434	"	"
"	SPE	"	"	6 5 55.000	"	"	91.2114	0.488	0.418	"	"
1245	SPZ	"	"	6 5 55.000	0.0313	"	113.8695	0.376	0.333	17.8	126.7
"	SPN	"	"	6 5 55.000	"	-15.00	112.8435	0.497	0.425	"	"
"	SPE	"	"	6 5 55.000	"	75.00	120.7941	0.486	0.401	"	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time d h m s	Time 24 SEP 1988 268	Correction (sec)	Seismometer Orientation (deg)	Seismometer Sensitivity (volts m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
11216 2-10 SFZ	24 SEP 1988	6 55 000	-0.1992	WWVB	-	104.9737	0.405	0.320	23.1	125.9	306.1
11216 SPN		6 55 000	"	"	-15.00	106.2555	0.509	0.416	"	"	"
11216 SPE		6 55 000	"	"	-75.00	104.0743	0.504	0.435	"	"	306.0
11217 SPN		6 55 000	0.2148	"	-15.00	106.3744	0.468	0.385	28.1	125.8	"
11217 SPE		6 55 000	"	"	-75.00	115.5793	0.468	0.417	"	"	"
11218 SPZ		6 55 000	-0.2227	"	-	107.6735	0.445	0.377	"	"	306.4
11218 SPN		6 55 000	"	"	-15.00	102.4046	0.415	0.326	32.1	126.1	"
11218 SPE		6 55 000	"	"	-75.00	119.5301	0.538	0.463	"	"	"
11219 SPZ		6 55 000	-0.2773	"	-	107.1711	0.534	0.444	"	"	"
11219 SPN		6 55 000	"	"	-15.00	109.2437	0.422	0.357	36.5	125.3	305.6
11219 SPE		6 55 000	"	"	-75.00	112.1432	0.507	0.423	"	"	"
11220 SPZ		6 55 000	0.0078	"	-	106.2984	0.511	0.436	"	"	"
11220 SPN		6 55 000	"	"	-15.00	92.7538	0.415	0.356	39.5	126.2	306.5
11220 SPE		6 55 000	"	"	-15.00	85.1736	0.526	0.440	"	"	"
11221 SPZ		6 55 000	0.0156	"	-75.00	90.0945	0.488	0.382	"	"	"
11221 SPN		6 55 000	"	"	-	120.8625	0.428	0.366	45.8	122.4	302.7
11221 SPE		6 55 000	"	"	-15.00	117.0131	0.508	0.464	"	"	"
11222 SPZ		6 55 000	0.5436 GOES	"	75.00	115.8302	0.490	0.420	"	"	"
11222 SPN		6 55 000	"	"	-	111.8476	0.457	0.457	48.7	125.2	305.5
11222 SPE		6 55 000	"	"	-15.00	112.9581	0.493	0.514	"	"	"
11223 SPZ		6 55 000	0.1074	WWVB	-75.00	111.3782	0.510	0.523	"	"	"
11223 SPN		6 55 000	"	"	-	99.5213	0.485	0.441	52.5	125.4	305.7
11223 SPE		6 55 000	"	"	-15.00	110.9653	0.477	0.487	"	"	"
11224 SPZ		6 55 000	0.1855	"	75.00	100.4654	0.480	0.440	"	"	"
11224 SPN		6 55 000	0.1855	"	-15.00	112.9986	0.468	0.394	57.3	125.2	305.6
11224 SPE		6 55 000	"	"	-15.00	105.2339	0.509	0.407	"	"	"
11225 SPZ		6 55 000	-0.6511 GOES	"	75.00	103.0961	0.514	0.438	"	"	"
11225 SPN		6 55 000	"	"	-15.00	113.0980	0.494	0.465	63.2	125.3	305.8
11225 SPE		6 55 000	"	"	-15.00	115.7602	0.480	0.424	"	"	"
11227 SPN		6 55 000	0.1841	"	75.00	105.1737	0.392	0.343	"	"	"
11227 SPE		6 55 000	"	"	-15.00	119.6034	0.426	0.393	69.8	126.1	306.6
11227 SPZ		6 55 000	"	"	75.00	106.0839	0.472	0.416	"	"	"
11228 SPN		6 55 000	0.0156 WWVB	"	-	118.8165	0.494	0.429	"	"	"
11228 SPE		6 55 000	"	"	-15.00	107.8404	0.474	0.417	73.7	126.5	307.0
11228 SPZ		6 55 000	"	"	75.00	115.2925	0.468	0.430	"	"	"
11229 SPN		6 55 000	0.0684	"	-	100.8088	0.459	0.398	"	"	"
11229 SPE		6 55 000	"	"	-15.00	145.0600	0.560	0.400	77.5	126.4	306.9
11229 SPZ		6 55 000	"	"	75.00	145.0600	0.540	0.400	"	"	"
11231 SPN		6 55 000	0.0212 GOES	"	-	135.9900	0.480	0.400	"	"	"
11231 SPE		6 55 000	"	"	-15.00	98.5121	0.471	0.362	85.7	125.8	306.4
11231 SPZ		6 55 000	"	"	75.00	101.6663	0.507	0.400	"	"	"
11232 SPN		6 55 000	0.0000 NONE	"	-	110.6077	0.386	0.339	"	"	"
11232 SPE		6 55 000	"	"	-15.00	108.6534	0.490	0.405	80.3	126.1	306.7
11232 SPZ		6 55 000	"	"	75.00	102.3860	0.485	0.414	"	"	"
									87.2723		0.338

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting d h m	Time s	Correction (sec)	Seismometer Orientation (deg)	Seismometer Sensitivity (volts/m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
1233 2-10 SPN	24 SEP 1988	268	6 55 000	0 00000	NONE	-15 00	98.5043	0.506	0.425	84.1	125.9
" " SPE	" "	"	6 55 000	"	"	75 00	89.4856	0.487	0.379	"	"
" " SPZ	" "	"	6 55 000	"	"	"	99.6476	0.416	0.340	"	"
1234 SPN	" "	"	6 55 000	-1 0469	WWVB	-15 00	107.4674	0.488	0.424	97.6	125.8
" " SPE	" "	"	6 55 000	"	"	75 00	105.9664	0.488	0.453	"	"
" " SPZ	" "	"	6 55 000	"	"	"	114.1378	0.468	0.487	"	"
1236 S1N	" "	"	6 55 000	-0 1818	GOES	-15 00	786.2735	0.610	0.823	106.2	125.8
" " SPE	" "	"	6 55 000	"	"	75 00	752.1228	0.554	1.952	"	"
" " SPZ	" "	"	6 55 000	"	"	"	715.6757	0.652	0.809	"	"
1238 SPN	" "	"	6 55 000	-0 0156	WWVB	-15 00	505.6474	0.802	1.454	117.4	126.2
" " SPE	" "	"	6 55 000	"	"	75 00	694.0557	0.551	0.681	"	"
" " SPZ	" "	"	6 55 000	"	"	"	624.0928	0.864	1.000	"	"
1240 SPN	" "	"	6 55 000	0 1717	"	-15 00	743.4758	1.024	1.293	125.0	125.9
" " SPE	" "	"	6 55 000	"	"	75 00	706.5759	0.938	1.117	"	"
" " SPZ	" "	"	6 55 000	"	"	"	697.1599	1.007	1.238	"	"
1241 SPN	" "	"	6 55 000	-0 1699	"	-15 00	622.2807	0.978	1.277	129.0	125.8
" " SPE	" "	"	6 55 000	"	"	75 00	696.1515	1.041	1.315	"	"
" " SPZ	" "	"	6 55 000	"	"	"	835.2012	0.680	0.900	"	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer Orientation (deg)	Sensitivity (volts m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Back Azimuth (deg)	
										(sec)	(deg)
1211 2 11 SPN	24 SEP 1988	268	8 1 55 000	0 1157 GOES	15 00	113 1000	0 453	0 475	23 9	77 5	257 7
	SPZ		8 1 55 000	"	75 00	113 7680	0 357	0 426	"	"	"
1212 SPZ			8 1 55 000	0 0169	"	101 4580	0 382	0 338	83 8	83 8	264 0
1212 SPN			8 1 55 000	"	"	95 8404	0 457	0 449	26 7	"	"
1212 SPE			8 1 55 000	"	"	104 6157	0 501	0 539	"	"	"
1213 SPZ			8 1 55 000	0 2305 WWVB	15 00	119 9548	0 483	0 482	30 0	88 7	269 0
1213 SPN			8 1 55 000	"	75 00	119 0937	0 434	0 434	"	"	"
1213 SPE			8 1 55 000	0 2773	"	111 1635	0 542	0 457	"	"	"
1214 SPZ			8 1 55 000	"	"	89 0961	0 427	0 320	33 5	92 8	273 1
1214 SPN			8 1 55 000	"	"	104 5607	0 501	0 434	"	"	"
1214 SPE			8 1 55 000	"	"	75 00	91 2114	0 488	36 5	95 8	276 1
1215 SPZ			8 1 55 000	0 0319 GOES	"	113 8686	0 376	0 333	"	"	"
1215 SPN			8 1 55 000	"	"	112 8435	0 497	0 425	"	"	"
1215 SPE			8 1 55 000	"	"	120 7941	0 486	0 401	"	"	"
1216 SPZ			8 1 55 000	0 2148 WWVB	"	104 6737	0 405	0 329	41 3	69 3	279 6
1216 SPN			8 1 55 000	"	"	106 2555	0 509	0 416	"	"	"
1216 SPE			8 1 55 000	"	"	104 0743	0 504	0 435	"	"	"
1217 SPZ			8 1 55 000	0 2305	"	106 3744	0 468	0 365	45 8	102 0	282 4
1217 SPN			8 1 55 000	"	"	106 3744	0 468	0 417	"	"	"
1217 SPE			8 1 55 000	"	"	115 5783	0 468	0 377	"	"	"
1218 SPZ			8 1 55 000	0 2461	"	107 6735	0 445	0 377	"	"	"
1218 SPN			8 1 55 000	"	"	102 4045	0 415	0 326	49 5	104 0	284 4
1218 SPE			8 1 55 000	"	"	118 5301	0 538	0 462	"	"	"
1219 SPZ			8 1 55 000	0 2773	"	107 1711	0 534	0 444	"	"	"
1219 SPN			8 1 55 000	"	"	109 2437	0 422	0 357	53 8	105 3	285 7
1219 SPE			8 1 55 000	"	"	112 1432	0 507	0 423	"	"	"
1220 SPZ			8 1 55 000	0 2461	"	106 2984	0 511	0 436	"	"	"
1220 SPN			8 1 55 000	"	"	92 7538	0 415	0 356	56 4	106 8	287 4
1220 SPE			8 1 55 000	"	"	85 1736	0 526	0 440	"	"	"
1221 SPZ			8 1 55 000	0 0313	"	90 0945	0 488	0 382	"	"	"
1221 SPN			8 1 55 000	"	"	120 8625	0 428	0 366	63 2	106 1	286 6
1221 SPE			8 1 55 000	"	"	117 0131	0 508	0 464	"	"	"
1222 SPZ			8 1 55 000	0 0078	"	75 00	115 8302	0 490	40 0	40 0	280 4
1222 SPN			8 1 55 000	"	"	105 00	85 5213	0 485	0 441	69 0	109 8
1222 SPE			8 1 55 000	"	"	110 9653	0 477	0 487	"	"	"
1223 SPZ			8 1 55 000	0 2070	"	75 00	100 4654	0 480	0 440	"	"
1223 SPN			8 1 55 000	"	"	99 9986	0 468	0 394	73 7	110 7	281 3
1223 SPE			8 1 55 000	"	"	105 2339	0 509	0 407	"	"	"
1224 SPZ			8 1 55 000	0 1309	"	75 00	103 0961	0 514	0 438	"	"
1224 SPN			8 1 55 000	"	"	115 7602	0 480	0 424	79 3	111 8	292 4
1224 SPE			8 1 55 000	"	"	75 00	105 1737	0 392	0 343	"	"
1225 SPZ			8 1 55 000	0 7251 GOES	"	113 0880	0 484	0 465	"	"	"
1225 SPN			8 1 55 000	"	"	118 6034	0 426	0 416	85 6	113 5	294 2
1225 SPE			8 1 55 000	"	"	106 0839	0 472	0 428	"	"	"
1227 SPZ			8 1 55 000	"	"	118 8165	0 474	0 428	"	"	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b (continued)

Seismogram	Date	Starting Time	Time Correction (sec)	Seismometer Orientation (deg)		Sensitivity (volts/m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
				d	h m s						
1228 2-11 SPN	24 SEP 1988	268	8 1 55.000	0 0078	WWVB	-15.00	107.8404	0.474	89.3	114.3	285.0
1228 SPE			8 1 55.000	"	"	75.00	115.2925	0.469	0.430	"	"
1228 SPZ			8 1 55.000	"	"	-	100.8088	0.459	0.389	"	"
1229 SPN			8 1 57.000	0.0547	"	-15.00	145.0600	0.560	0.400	93.0	114.7
1229 SPE			8 1 57.000	"	"	75.00	145.0600	0.540	0.400	"	"
1231 SPZ			8 1 57.000	"	"	-	135.9800	0.480	0.400	"	"
1231 SPN			8 1 55.000	0.0244	GOES	-15.00	98.5121	0.471	0.362	101.3	115.1
1231 SPE			8 1 55.000	"	"	75.00	101.6663	0.507	0.400	"	"
1232 SPZ			8 1 55.000	"	"	-	110.6077	0.386	0.339	"	"
1232 SPN			8 1 58.000	-0.9004	WWVB	-15.00	108.6534	0.490	0.405	105.7	115.8
1232 SPE			8 1 58.000	"	"	75.00	102.3860	0.485	0.414	"	"
1233 SPZ			8 1 58.000	"	"	-	9.2723	0.422	0.338	"	"
1233 SPN			8 1 55.000	0.0000	NON	-15.00	98.5043	0.506	0.425	109.5	116.1
1233 SPE			8 1 55.000	"	"	75.00	89.4856	0.487	0.378	"	"
1234 SPZ			8 1 55.000	"	"	-	99.6476	0.416	0.340	"	"
1234 SPN			8 1 55.000	1.0156	WWVB	-15.00	107.4674	0.488	0.424	113.0	116.2
1234 SPE			8 1 55.000	"	"	75.00	105.9864	0.488	0.453	"	"
1235 SPZ			8 1 55.000	"	"	-	114.1378	0.468	0.487	"	"
1235 SPN			8 1 55.000	0.0048	GOES	-15.00	102.6012	0.516	0.418	116.5	116.6
1235 SPE			8 1 55.000	"	"	75.00	104.3616	0.476	0.416	"	"
1236 SPZ			8 1 55.000	"	"	-	107.8076	0.391	0.338	"	"
1236 SPN			8 1 55.000	-0.2211	"	-15.00	78.62735	0.610	0.823	121.5	116.9
1236 SPE			8 1 55.000	"	"	75.00	75.21228	0.554	1.952	"	"
1238 SPZ			8 1 55.000	"	"	-	715.6757	0.652	0.809	"	"
1238 SPN			8 1 55.000	0.0156	WWVB	-15.00	505.6474	0.802	1.454	132.5	118.0
1238 SPE			8 1 55.000	"	"	75.00	694.0557	0.551	0.681	"	"
1240 SPZ			8 1 55.000	"	"	-	624.0828	0.864	1.000	"	"
1240 SPN			8 1 55.000	0.1777	"	-15.00	743.4758	1.024	1.283	140.1	118.1
1240 SPE			8 1 55.000	"	"	75.00	706.5758	0.938	1.117	"	"
1241 SPZ			8 1 55.000	"	"	-	687.1599	1.007	1.238	"	"
1241 SPN			8 1 55.000	-0.1892	"	-15.00	622.2807	0.978	1.277	144.0	118.3
1241 SPE			8 1 55.000	"	"	75.00	696.1515	1.041	1.315	"	"
1241 SPZ			8 1 55.000	"	"	-	835.2012	0.650	0.900	"	"
1241 SPN			8 1 55.000	-0.0919	GOES	-15.00	605.453	0.475	50.4	76.8	257.4
1241 SPE			8 1 55.000	"	"	75.00	113.1000	0.557	0.426	"	"
1241 SPZ			8 1 55.000	"	"	-	101.4580	0.392	0.338	"	"
1241 SPN			8 1 55.000	-0.0135	"	-	95.8404	0.457	0.449	53.1	80.1
1241 SPE			8 1 55.000	"	"	-15.00	104.6157	0.501	0.539	"	"
1241 SPZ			8 1 55.000	"	"	75.00	98.2108	0.493	0.482	"	"
1241 SPN			8 1 55.000	0.1689	WWVB	-15.00	119.9548	0.434	0.361	56.2	82.0
1241 SPE			8 1 55.000	"	"	75.00	98.0837	0.509	0.384	"	"
1241 SPZ			8 1 55.000	0.2158	"	-75.00	111.1635	0.542	0.457	"	"
1241 SPN			8 1 55.000	"	"	-15.00	89.0961	0.427	0.320	59.4	85.6
1241 SPE			8 1 55.000	"	"	75.00	104.5607	0.501	0.434	"	"
1241 SPZ			8 1 55.000	"	"	-	91.2114	0.488	0.418	"	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time (sec)	Time (sec)	Correction (sec)	Seismometer Orientation (deg)	Sensitivity (volts m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)	
1215 2-12 SPZ	24 SEP 1988	268	4 3 55 000	0 0381 WWVB	15 00	113 8695	0 376	0 333	62 1	87 7	268 2	
" " SPN	" "	"	4 3 55 000	"	75 00	112 8435	0 487	0 425	"	"	"	
" " SPE	" "	"	4 3 55 000	-0 1689	"	120 7944	0 486	0 401	"	"	"	
1216 " SPZ	" "	"	4 3 55 000	"	15 00	104 9737	0 405	0 329	66 6	90 3	270 9	
" " SPN	" "	"	4 3 55 000	"	"	106 2555	0 509	0 416	"	"	"	
" " SPE	" "	"	4 3 55 000	"	75 00	104 0743	0 504	0 435	"	"	"	
1217 " SPN	" "	"	4 3 55 000	0 1924	-15 00	106 3744	0 468	0 385	70 7	82 6	273 2	
" " SPE	" "	"	4 3 55 000	"	75 00	115 5783	0 468	0 417	"	"	"	
" " SPZ	" "	"	4 3 55 000	"	"	107 6735	0 445	0 377	"	"	"	
1218 " SPZ	" "	"	4 3 55 000	0 2002	-15 00	102 4046	0 415	0 326	74 0	94 4	275 0	
" " SPN	" "	"	4 3 55 000	"	75 00	119 5301	0 538	0 463	"	"	"	
" " SPE	" "	"	4 3 55 000	-0 2539	"	107 1711	0 534	0 444	"	"	"	
1219 " SPZ	" "	"	4 3 55 000	"	-15 00	109 2437	0 422	0 357	78 1	95 8	276 5	
" " SPN	" "	"	4 3 55 000	"	75 00	112 1432	0 507	0 423	"	"	"	
" " SPE	" "	"	4 3 55 000	"	"	75 00	106 2984	0 511	0 436	"	"	
1220 " SPZ	" "	"	4 3 55 000	0 0000	-15 00	92 7538	0 415	0 356	80 5	87 2	277 9	
" " SPN	" "	"	4 3 55 000	"	75 00	85 1736	0 526	0 440	"	"	"	
" " SPE	" "	"	4 3 55 000	"	"	90 0945	0 488	0 382	"	"	"	
1221 " SPZ	" "	"	4 3 55 000	0 0078	-15 00	120 8625	0 428	0 366	87 3	97 4	278 1	
" " SPN	" "	"	4 3 55 000	"	75 00	117 0131	0 509	0 464	"	"	"	
" " SPE	" "	"	4 3 55 000	"	"	75 00	115 8302	0 490	0 420	"	"	
1222 " SPZ	" "	"	4 3 55 000	0 4825 GOES	-15 00	111 8476	0 457	0 464	89 0	98 5	280 3	
" " SPN	" "	"	4 3 55 000	"	75 00	112 8581	0 493	0 514	"	"	"	
" " SPE	" "	"	4 3 55 000	"	"	75 00	111 3782	0 510	0 523	"	"	
1223 " SPZ	" "	"	4 3 55 000	"	-15 00	117 0361	0 508	0 464	"	"	"	
" " SPN	" "	"	4 3 55 000	"	"	75 00	115 8302	0 490	0 420	"	"	
" " SPE	" "	"	4 3 55 000	"	"	75 00	111 8476	0 457	0 464	"	"	
1224 " SPZ	" "	"	4 3 55 000	0 1689	-15 00	105 2339	0 509	0 407	86 8	101 7	282 5	
" " SPN	" "	"	4 3 55 000	"	75 00	103 0961	0 514	0 438	"	"	"	
" " SPE	" "	"	4 3 55 000	"	"	75 00	98 5213	0 485	0 441	82 4	100 6	281 4
1225 " SPZ	" "	"	4 3 55 000	"	-15 00	110 9653	0 477	0 487	"	"	"	
" " SPN	" "	"	4 3 55 000	"	75 00	100 4654	0 480	0 440	"	"	"	
" " SPE	" "	"	4 3 55 000	0 1689	"	99 9286	0 468	0 384	"	"	"	
1227 " SPN	" "	"	4 3 55 000	"	-15 00	105 1737	0 392	0 343	"	"	"	
" " SPE	" "	"	4 3 55 000	0 1553	-15 00	119 6034	0 426	0 393	108 0	104 9	285 8	
1228 " SPZ	" "	"	4 3 55 000	"	75 00	106 0839	0 472	0 416	"	"	"	
" " SPN	" "	"	4 3 55 000	0 5778 GOES	-15 00	113 0980	0 494	0 465	102 2	103 0	283 9	
" " SPE	" "	"	4 3 55 000	"	75 00	115 7602	0 480	0 424	"	"	"	
1229 " SPZ	" "	"	4 3 55 000	"	-15 00	105 1737	0 392	0 343	"	"	"	
" " SPN	" "	"	4 3 55 000	0 1553	-15 00	119 6034	0 426	0 393	108 0	104 9	285 8	
" " SPE	" "	"	4 3 55 000	"	75 00	106 0839	0 472	0 416	"	"	"	
1231 " SPN	" "	"	4 3 55 000	0 0178 GOES	-15 00	118 8165	0 494	0 465	102 2	103 0	286 7	
" " SPE	" "	"	4 3 55 000	"	75 00	107 8404	0 474	0 417	111 5	105 8	286 7	
" " SPZ	" "	"	4 3 55 000	"	"	115 2925	0 469	0 430	"	"	"	
" " SPN	" "	"	4 3 55 000	"	"	100 8088	0 459	0 399	"	"	"	
" " SPE	" "	"	4 3 55 000	"	"	145 0600	0 560	0 400	115 1	106 4	287 3	
" " SPZ	" "	"	4 3 55 000	"	"	145 0600	0 560	0 400	"	"	"	
" " SPN	" "	"	4 3 55 000	"	"	135 8900	0 480	0 400	"	"	"	
" " SPE	" "	"	4 3 55 000	"	"	98 5121	0 471	0 362	123 2	107 5	288 3	
" " SPZ	" "	"	4 3 55 000	"	"	101 6663	0 507	0 400	"	"	"	
" " SPN	" "	"	4 3 55 000	"	"	110 6077	0 586	0 339	"	"	"	

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time Correction (sec)	Seismometer Orientation (deg)			Sensitivity (volts/m/sec)	Period (sec)	Pendulum Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
				d	h	m						
1232	2-12	SPN	24 SEP 1988 268	4	4	10.000	0.0000	NONE	-15.00	109.6534	0.490	127.5
		SPE		4	4	10.000	0.0000		75.00	102.3860	0.485	127.5
		SPZ		4	4	10.000	0.0000			97.2723	0.422	108.1
1233		SPN		4	3	55.000	0.0000		-15.00	98.5043	0.506	108.5
		SPE		4	3	55.000	0.0000		75.00	89.4856	0.487	108.5
		SPZ		4	3	55.000	0.0000			98.6476	0.416	108.5
1234		SPN		4	3	55.000	-1.0615	WWVB	-15.00	107.4674	0.488	131.1
		SPE		4	3	55.000	-1.0615		75.00	105.9664	0.488	131.1
		SPZ		4	3	55.000	0.0000			114.1378	0.468	131.1
1235		SPN		4	3	55.000	0.0035	GOES	-15.00	102.6012	0.516	137.9
		SPE		4	3	55.000	0.0035		75.00	114.3616	0.416	137.9
		SPZ		4	3	55.000	0.0000			107.8076	0.391	137.9
1236		SPN		4	3	55.000	-0.1626		-15.00	786.2735	0.610	142.8
		SPE		4	3	55.000	0.0000		75.00	752.1228	0.554	142.8
		SPZ		4	3	55.000	0.0000			715.6757	0.652	142.8
1240		SPN		4	3	55.000	0.1717	WWVB	-15.00	743.4758	1.024	161.0
		SPE		4	3	55.000	0.1717		75.00	706.5759	0.938	161.0
		SPZ		4	3	55.000	0.0000			697.1589	1.007	161.0
1241		SPN		4	3	55.000	-0.1465		-15.00	622.2807	0.978	164.8
		SPE		4	3	55.000	0.0000		75.00	686.1515	1.041	164.8
		SPZ		4	3	55.000	0.0000			835.2912	0.680	164.8
1241	2-13	SPN		6	3	55.000	0.1038	GOES	-15.00	113.1000	0.453	71.9
		SPE		6	3	55.000	0.1038		75.00	113.7880	0.357	71.9
		SPZ		6	3	55.000	0.0000			101.4590	0.392	71.9
1242		S2Z		6	3	55.000	-0.0135		-15.00	95.8404	0.457	74.9
		SPN		6	3	55.000	0.0000		75.00	104.6157	0.501	74.9
		SPE		6	3	55.000	0.0000			88.0961	0.427	74.9
		SPZ		6	3	55.000	0.0000			98.2109	0.492	74.9
1243		SPN		6	3	55.000	0.1992	WWVB	-15.00	119.9548	0.434	78.3
		SPE		6	3	55.000	0.1992		75.00	98.0937	0.509	78.3
		SPZ		6	3	55.000	0.0000			113.8695	0.376	78.3
1244		S2Z		6	3	55.000	-0.2461		-15.00	111.1635	0.542	84.5
		SPN		6	3	55.000	0.0000		75.00	104.6157	0.501	84.5
		SPE		6	3	55.000	0.0000			88.0961	0.427	84.5
		SPZ		6	3	55.000	0.0000			98.2109	0.492	84.5
1245		SPN		6	3	55.000	0.0391		-15.00	91.2114	0.488	90.4
		SPE		6	3	55.000	0.0391		75.00	104.0743	0.504	90.4
		SPZ		6	3	55.000	-0.2148		-15.00	106.3744	0.468	93.3
1246		S2Z		6	3	55.000	0.0000		75.00	112.8435	0.497	93.3
		SPN		6	3	55.000	0.0000			120.7941	0.425	93.3
		SPE		6	3	55.000	0.0000			104.9737	0.405	93.3
		SPZ		6	3	55.000	0.0000			106.2555	0.509	93.3
1247		SPN		6	3	55.000	0.0000		-15.00	104.0743	0.435	93.3
		SPE		6	3	55.000	-0.2227		75.00	115.5793	0.417	93.3
		SPZ		6	3	55.000	0.0000			107.6735	0.445	93.3
1248		SPN		6	3	55.000	-0.2227		-15.00	102.4046	0.415	95.2
		SPE		6	3	55.000	0.0000		75.00	119.5301	0.538	95.2
		SPZ		6	3	55.000	0.0000			107.1711	0.534	95.2

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Sensitivity	Pendulum	Damping	Back
		d h m	s	(sec)	Orientation (deg)	(volts/m sec)	Period (sec)	Ratio	Azimuth (deg)
1219 2-13 SPZ	24 SEP 1988	268	6 3 55.000	-0.2773 WWVB	-	108.2437	0.422	0.357	100.7
" " SPN	"	"	6 3 55.000	"	-15.00	112.1432	0.507	0.423	"
" " SPE	"	"	6 3 55.000	"	75.00	106.2984	0.511	0.436	"
1220 SPZ	"	"	6 3 55.000	0.0078	"	92.7538	0.415	0.356	103.1
" " SPN	"	"	6 3 55.000	"	-15.00	85.1736	0.526	0.440	"
" " SPE	"	"	6 3 55.000	"	75.00	90.0845	0.488	0.382	"
1221 SPZ	"	"	6 3 55.000	0.0156	"	120.8625	0.428	0.366	110.0
" " SPN	"	"	6 3 55.000	"	-15.00	117.0131	0.509	0.464	"
" " SPE	"	"	6 3 55.000	"	75.00	115.8302	0.490	0.420	"
1222 SPZ	"	"	6 3 55.000	0.5436 GOES	"	111.8476	0.457	0.464	111.6
" " SPN	"	"	6 3 55.000	"	-15.00	112.9581	0.493	0.514	"
" " SPE	"	"	6 3 55.000	"	75.00	111.3782	0.510	0.523	"
1223 SPZ	"	"	6 3 55.000	0.1074 WWVB	"	99.5213	0.485	0.441	115.1
" " SPN	"	"	6 3 55.000	"	-15.00	110.9653	0.477	0.487	"
" " SPE	"	"	6 3 55.000	"	75.00	100.4654	0.480	0.440	"
1224 SPZ	"	"	6 3 55.000	0.1855	"	98.8986	0.468	0.394	119.5
" " SPN	"	"	6 3 55.000	"	-15.00	105.2339	0.509	0.407	"
" " SPE	"	"	6 3 55.000	"	75.00	103.0861	0.514	0.438	"
1225 SPZ	"	"	6 3 55.000	-0.6511 GOES	"	113.0880	0.494	0.465	124.8
" " SPN	"	"	6 3 55.000	"	-15.00	115.7602	0.480	0.424	"
" " SPE	"	"	6 3 55.000	"	75.00	105.1737	0.392	0.343	"
1227 SPZ	"	"	6 3 55.000	0.1841	"	119.6034	0.426	0.393	130.6
" " SPN	"	"	6 3 55.000	"	-15.00	106.0839	0.472	0.416	"
" " SPE	"	"	6 3 55.000	"	75.00	118.8165	0.494	0.429	"
1228 SPZ	"	"	6 3 55.000	0.0156 WWVB	-15.00	107.84C4	0.474	0.417	134.0
" " SPN	"	"	6 3 55.000	"	75.00	115.2825	0.469	0.430	"
" " SPE	"	"	6 3 55.000	"	-15.00	100.8088	0.458	0.398	"
1229 SPZ	"	"	6 3 55.000	0.0625	"	145.0800	0.560	0.400	137.6
" " SPN	"	"	6 3 55.000	"	75.00	145.0600	0.540	0.400	"
" " SPE	"	"	6 3 55.000	"	-15.00	135.9900	0.480	0.400	"
1231 SPZ	"	"	6 3 55.000	0.0212 GOES	-15.00	98.5121	0.471	0.362	145.7
" " SPN	"	"	6 3 55.000	"	75.00	101.6663	0.507	0.400	"
" " SPE	"	"	6 3 55.000	"	-15.00	110.6077	0.386	0.339	"
1232 SPZ	"	"	6 3 55.000	0.0000 NONE	-15.00	108.6534	0.490	0.405	149.8
" " SPN	"	"	6 3 55.000	"	75.00	102.3860	0.465	0.414	"
" " SPE	"	"	6 3 55.000	"	-15.00	97.2723	0.422	0.338	"
1233 SPZ	"	"	6 3 55.000	0.0000	-15.00	100.8088	0.458	0.425	153.5
" " SPN	"	"	6 3 55.000	"	75.00	98.5043	0.506	0.400	"
" " SPE	"	"	6 3 55.000	"	-15.00	89.4856	0.487	0.379	"
1234 SPZ	"	"	6 3 55.000	-1.0468 WWVB	-15.00	89.6476	0.416	0.340	"
" " SPN	"	"	6 3 55.000	-0.1919 GOES	-15.00	107.4674	0.488	0.424	156.9
" " SPE	"	"	6 3 55.000	"	75.00	105.9664	0.488	0.453	"
1235 SPZ	"	"	6 3 55.000	"	-15.00	114.1378	0.468	0.487	"
" " SPN	"	"	6 3 55.000	"	75.00	786.2735	0.610	0.823	165.1
" " SPE	"	"	6 3 55.000	"	-75.00	752.1228	0.554	1.952	"
" " SPZ	"	"	6 3 55.000	"	-	715.6757	0.652	0.809	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Sensitivity	Pendulum	Damping	Distance	Azimuth	Back
		d h m	s	(sec)	(deg)	(volts/m.sec)	Period	Ratio	(km)	(deg)	Azimuth (deg)
1238 2-13	SPN	24 SEP 1968	268	6 3 55.000	0.0156	WWVB	-15.00	505.6474	0.902	1.454	175.6
	SPE	"	"	6 3 55.000	"	"	75.00	694.0557	0.551	0.681	"
	SPZ	"	"	6 3 55.000	"	"	"	624.0928	0.864	1.000	"
1240	SPN	"	"	6 3 55.000	0.1717	"	-15.00	743.4758	1.024	1.293	183.1
	SPE	"	"	6 3 55.000	"	"	75.00	706.5759	0.938	1.117	"
	SPZ	"	"	6 3 55.000	"	"	"	397.1599	1.007	1.238	"
	SPN	"	"	6 3 55.000	-0.1699	"	-15.00	622.2807	0.978	1.277	186.9
1241	SPE	"	"	6 3 55.000	"	"	75.00	696.1515	1.041	1.315	"
	SPZ	"	"	6 3 55.000	"	"	"	835.2012	0.680	0.900	"
1241 2-14	SPN	"	"	7 59 55.000	-0.1157	GOES	-15.00	113.1000	0.453	0.475	89.7
	SPE	"	"	7 59 55.000	"	"	75.00	113.7880	0.557	0.426	"
	SPZ	"	"	7 59 55.000	"	"	"	101.4580	0.392	0.338	"
1242	SPZ	"	"	7 59 55.000	-0.0169	"	-	95.84404	0.457	0.449	92.9
	SPN	"	"	7 59 55.000	"	"	-15.00	104.6157	0.501	0.539	"
	SPE	"	"	7 59 55.000	"	"	75.00	98.2108	0.493	0.492	"
1242 2-15	SPZ	"	"	7 59 55.000	0.2305	WWVB	-	119.9578	0.434	0.361	96.1
	SPN	"	"	7 59 55.000	"	"	-15.00	98.0937	0.509	0.384	"
	SPE	"	"	7 59 55.000	"	"	75.00	111.1635	0.542	0.457	"
1244	SPZ	"	"	7 59 55.000	-0.2773	"	-	89.0861	0.427	0.320	99.8
	SPN	"	"	7 59 55.000	"	"	-15.00	104.5607	0.501	0.434	"
	SPE	"	"	7 59 55.000	"	"	75.00	81.2114	0.488	0.418	"
1244 2-15	SPZ	"	"	7 59 55.000	0.0319	"	-	113.8695	0.376	0.333	102.7
	SPN	"	"	7 59 55.000	"	"	-15.00	112.8435	0.487	0.425	"
	SPE	"	"	7 59 55.000	"	"	75.00	120.7941	0.486	0.401	"
1245	SPZ	"	"	7 59 55.000	-0.1982	"	-	104.9737	0.405	0.329	107.4
	SPN	"	"	7 59 55.000	"	"	-15.00	106.2555	0.509	0.416	"
	SPE	"	"	7 59 55.000	"	"	75.00	104.0743	0.504	0.435	"
1245 2-16	SPZ	"	"	7 59 55.000	0.2305	"	-15.00	106.3744	0.468	0.385	111.7
	SPN	"	"	7 59 55.000	"	"	75.00	115.5793	0.468	0.417	"
	SPE	"	"	7 59 55.000	"	"	"	107.6735	0.445	0.377	"
1246	SPZ	"	"	7 59 55.000	-0.2461	"	-	102.4046	0.415	0.326	115.0
	SPN	"	"	7 59 55.000	"	"	-15.00	119.5301	0.538	0.463	"
	SPE	"	"	7 59 55.000	"	"	75.00	107.1711	0.534	0.444	"
1246 2-17	SPZ	"	"	7 59 55.000	0.2773	"	-	108.2437	0.422	0.357	118.2
	SPN	"	"	7 59 55.000	"	"	-15.00	112.1432	0.507	0.423	"
	SPE	"	"	7 59 55.000	"	"	75.00	106.2984	0.511	0.436	"
1246 2-18	SPZ	"	"	7 59 55.000	0.0156	"	-	92.7538	0.415	0.356	121.6
	SPN	"	"	7 59 55.000	"	"	-15.00	107.1711	0.534	0.440	"
	SPE	"	"	7 59 55.000	"	"	75.00	80.0945	0.488	0.382	"
1247	SPZ	"	"	7 59 55.000	0.0156	"	-	120.8625	0.428	0.366	128.4
	SPN	"	"	7 59 55.000	"	"	-15.00	117.0131	0.509	0.464	"
	SPE	"	"	7 59 55.000	"	"	75.00	115.8302	0.490	0.420	"
1247 2-19	SPZ	"	"	7 59 55.000	0.1309	"	-	99.5213	0.485	0.441	133.5
	SPN	"	"	7 59 55.000	"	"	-15.00	110.9653	0.477	0.487	"
	SPE	"	"	7 59 55.000	"	"	75.00	100.4654	0.480	0.440	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Seismometer		Pendulum	Damping	Azimuth	Azimuth
				Correction (sec)	Orientation (deg)				
1224 2-14 SP2	24 SEP 1988	268	7 59 55.000	0.2070	WWVB	-15.00	0.468	0.384	100.8
" SPN	"	"	7 59 55.000	"	"	75.00	0.509	0.407	"
" SPE	"	"	7 59 55.000	"	"	15.00	0.514	0.438	"
1225 " SPN	"	"	7 59 55.000	-0.7251	GOES	75.00	0.480	0.424	143.3
" SPE	"	"	7 59 55.000	"	"	-	0.392	0.343	"
" SP2	"	"	7 59 55.000	"	"	-	0.494	0.465	"
1227 " SPN	"	"	7 59 55.000	0.2128	"	-15.00	0.426	0.393	149.0
" SPE	"	"	7 59 55.000	"	"	75.00	0.472	0.416	"
" SP2	"	"	7 59 55.000	"	"	-	0.429	0.429	"
1228 " SPN	"	"	7 59 55.000	0.0078	WWVB	-15.00	0.474	0.417	103.8
" SPE	"	"	7 59 55.000	"	"	75.00	0.469	0.430	"
" SP2	"	"	7 59 55.000	"	"	-	0.459	0.398	"
1229 " SPN	"	"	8 0 10.000	0.0547	"	-15.00	0.600	0.560	104.3
" SPE	"	"	8 0 10.000	"	"	75.00	0.450	0.400	"
" SP2	"	"	8 0 10.000	"	"	-	0.35	0.380	"
1231 " SPN	"	"	7 59 55.000	0.0244	GOES	-15.00	0.480	0.400	105.0
" SPE	"	"	7 59 55.000	"	"	75.00	0.512	0.471	"
" SP2	"	"	7 59 55.000	"	"	-	0.307	0.400	"
1232 " SPN	"	"	8 0 10.000	-0.8082	WWVB	-15.00	0.6077	0.386	"
" SPE	"	"	8 0 10.000	"	"	75.00	0.490	0.405	"
" SP2	"	"	8 0 10.000	"	"	-	0.35	0.386	"
1233 " SPN	"	"	7 59 55.000	0.0000	NONE	-15.00	0.6534	0.490	105.7
" SPE	"	"	7 59 55.000	"	"	75.00	0.400	0.405	"
" SP2	"	"	7 59 55.000	"	"	-	0.35	0.386	"
1234 " SPN	"	"	7 59 55.000	-1.0234	WWVB	-15.00	0.3860	0.485	164.1
" SPE	"	"	7 59 55.000	"	"	75.00	0.6121	0.562	"
" SP2	"	"	7 59 55.000	"	"	-	0.400	0.400	"
1235 " SPN	"	"	7 59 55.000	0.0048	GOES	-15.00	0.6077	0.398	106.1
" SPE	"	"	7 59 55.000	"	"	75.00	0.506	0.425	"
" SP2	"	"	7 59 55.000	"	"	-	0.35	0.379	"
1236 " SPN	"	"	7 59 55.000	-1.0234	WWVB	-15.00	0.6474	0.485	105.0
" SPE	"	"	7 59 55.000	"	"	75.00	0.9664	0.488	"
" SP2	"	"	7 59 55.000	"	"	-	0.422	0.338	"
1237 " SPN	"	"	7 59 55.000	0.0048	GOES	-15.00	0.6012	0.516	171.9
" SPE	"	"	7 59 55.000	"	"	75.00	0.506	0.487	"
" SP2	"	"	7 59 55.000	"	"	-	0.35	0.340	"
1238 " SPN	"	"	7 59 55.000	-0.0156	WWVB	-15.00	0.6012	0.416	106.4
" SPE	"	"	7 59 55.000	"	"	75.00	0.476	0.424	"
" SP2	"	"	7 59 55.000	"	"	-	0.35	0.386	"
1239 " SPN	"	"	7 59 55.000	-0.2211	"	-15.00	0.9664	0.453	175.3
" SPE	"	"	7 59 55.000	"	"	75.00	1.0000	0.488	"
" SP2	"	"	7 59 55.000	"	"	-	0.487	0.487	"
1240 " SPN	"	"	7 59 55.000	0.1777	"	-15.00	0.652	0.809	"
" SPE	"	"	7 59 55.000	"	"	75.00	0.516	0.418	"
" SP2	"	"	7 59 55.000	"	"	-	0.35	0.379	"
1241 " SPN	"	"	7 59 55.000	-0.1982	"	-15.00	0.6012	0.416	106.8
" SPE	"	"	7 59 55.000	"	"	75.00	0.506	0.424	"
" SP2	"	"	7 59 55.000	"	"	-	0.35	0.386	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Sensitivity	Pendulum	Damping	Back
		d h m	s	(sec)	Orientation (deg)	(volts/m/sec)	Period (sec)	Ratio	Azimuth (deg)
1211	2-17 SPN	24 SEP 1988	268	6 1 55.000	-0.1038 GCES	-15.00	113.1000	0.453	206.4
	SPE	"	"	6 1 55.000	"	75.00	113.7880	0.357	97.1
	SPZ	"	"	6 1 55.000	"	-	101.4580	0.426	278.9
1212	SPZ	"	"	6 1 55.000	-0.0135	-	95.8404	0.338	"
	SPN	"	"	6 1 55.000	"	-15.00	104.6157	0.449	97.6
	SPE	"	"	6 1 55.000	"	75.00	98.2108	0.501	279.4
1213	SPZ	"	"	6 1 55.000	0.1982 WWVB	-	119.9548	0.493	"
	SPN	"	"	6 1 55.000	"	-15.00	98.0837	0.457	"
	SPE	"	"	6 1 55.000	"	75.00	111.1635	0.509	"
1214	SPZ	"	"	6 1 55.000	-0.2461	-	89.0861	0.427	280.4
	SPN	"	"	6 1 55.000	"	-15.00	104.5607	0.501	"
	SPE	"	"	6 1 55.000	"	75.00	91.2114	0.488	"
1215	SPZ	"	"	6 1 55.000	0.0313	-	113.8685	0.376	280.8
	SPN	"	"	6 1 55.000	"	-15.00	112.8435	0.497	"
	SPE	"	"	6 1 55.000	"	75.00	120.7841	0.486	"
1216	SPZ	"	"	6 1 55.000	-0.1992	-	104.9737	0.405	281.3
	SPN	"	"	6 1 55.000	"	-15.00	106.2555	0.509	"
	SPE	"	"	6 1 55.000	"	75.00	104.0743	0.504	"
1217	SPZ	"	"	6 1 55.000	-0.1982	-	106.3744	0.468	281.6
	SPN	"	"	6 1 55.000	"	-15.00	115.5783	0.468	"
	SPE	"	"	6 1 55.000	"	75.00	107.6735	0.445	"
1218	SPZ	"	"	6 1 55.000	-0.2227	-	102.4046	0.415	282.4
	SPN	"	"	6 1 55.000	"	-15.00	119.5301	0.538	"
	SPE	"	"	6 1 55.000	"	75.00	107.1711	0.534	"
1219	SPZ	"	"	6 1 55.000	0.2773	-	109.2437	0.422	282.7
	SPN	"	"	6 1 55.000	"	-15.00	112.1432	0.507	"
	SPE	"	"	6 1 55.000	"	75.00	106.2984	0.511	"
1220	SPZ	"	"	6 1 55.000	0.0078	-	92.7538	0.415	283.1
	SPN	"	"	6 1 55.000	"	-15.00	85.1736	0.526	"
	SPE	"	"	6 1 55.000	"	75.00	90.0845	0.488	"
1221	SPZ	"	"	6 1 55.000	0.0156	-	120.8625	0.428	283.1
	SPN	"	"	6 1 55.000	"	-15.00	117.0131	0.509	"
	SPE	"	"	6 1 55.000	"	75.00	115.8302	0.420	"
1222	SPZ	"	"	6 1 55.000	0.5436 GOES	-	111.8476	0.457	283.8
	SPN	"	"	6 1 55.000	"	-15.00	112.9581	0.493	"
	SPE	"	"	6 1 55.000	"	75.00	111.3782	0.510	"
1223	SPZ	"	"	6 1 55.000	0.115. WWVB	-	99.5213	0.485	284.2
	SPN	"	"	6 1 55.000	"	-15.00	110.9653	0.477	"
	SPE	"	"	6 1 55.000	"	75.00	100.4654	0.480	"
1224	SPZ	"	"	6 1 55.000	0.1992	-	98.9986	0.468	284.6
	SPN	"	"	6 1 55.000	"	-15.00	105.2339	0.509	"
	SPE	"	"	6 1 55.000	"	75.00	103.0861	0.514	"
1225	SPZ	"	"	6 1 55.000	-0.6511 GOES	-	113.0880	0.494	285.1
	SPN	"	"	6 1 55.000	"	-15.00	115.7602	0.480	"
	SPE	"	"	6 1 55.000	"	75.00	105.1737	0.392	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Correction (sec)	Seismometer Orientation (deg)	Seismometer Sensitivity (volts/m sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
1227 2-17 SPN	24 SEP 1988	268	6 1 55 000	0 1841 GOES	-15 00	119 6034	0 426	0 393	268 6	103 6	285 8
" " SPE	" "	"	6 1 55 000	" "	75 00	106 0839	0 472	0 416	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	118 8165	0 494	0 429	" "	" "	" "
1228 SPN	" "	"	6 1 55 000	0 0078 WWVB	-15 00	107 8404	0 474	0 417	272 1	104 0	286 3
" " SPE	" "	"	6 1 55 000	" "	75 00	115 2925	0 468	0 430	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	100 8088	0 459	0 398	" "	" "	" "
1229 SPN	" "	"	6 2 25 000	0 0625	-15 00	145 0600	0 560	0 400	275 7	104 3	286 6
" " SPE	" "	"	6 2 25 000	" "	75 00	145 0600	0 540	0 400	" "	" "	" "
" " SPZ	" "	"	6 2 25 000	" "	"	135 9800	0 480	0 400	" "	" "	" "
1231 SPN	" "	"	6 1 55 000	0 0212 GOES	-15 00	88 5121	0 471	0 362	283 8	104 7	287 0
" " SPE	" "	"	6 1 55 000	" "	75 00	101 6663	0 507	0 400	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	110 6077	0 386	0 339	" "	" "	" "
1232 SPN	" "	"	6 2 25 000	0 9082 WWVB	-15 00	109 6534	0 490	0 405	287 9	105 1	287 4
" " SPE	" "	"	6 2 25 000	" "	75 00	102 3860	0 485	0 414	" "	" "	" "
" " SPZ	" "	"	6 2 25 000	" "	"	87 2723	0 422	0 338	" "	" "	" "
1233 SPN	" "	"	6 1 55 000	0 0000 NONE	-15 00	88 5043	0 506	0 425	291 6	105 3	287 7
" " SPE	" "	"	6 1 55 000	" "	75 00	89 4856	0 487	0 379	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	89 6476	0 416	0 340	" "	" "	" "
1234 SPN	" "	"	6 1 55 000	-1 0469 WWVB	-15 00	107 4674	0 488	0 424	295 0	105 4	287 9
" " SPE	" "	"	6 1 55 000	" "	75 00	105 9664	0 488	0 453	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	114 1378	0 468	0 487	" "	" "	" "
1236 SPN	" "	"	6 1 55 000	-0 1919	-15 00	786 2735	0 610	0 823	303 2	106 0	288 5
" " SPE	" "	"	6 1 55 000	" "	75 00	752 1228	0 554	1 952	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	715 6757	0 652	0 808	" "	" "	" "
1238 SPN	" "	"	6 1 55 000	-0 0156	-15 00	505 6474	0 902	1 454	313 6	106 7	289 3
" " SPE	" "	"	6 1 55 000	" "	75 00	694 0557	0 551	0 681	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1240 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1241 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1244 SPN	" "	"	6 1 55 000	-0 0919 GOES	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1245 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1246 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1247 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1248 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1249 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1250 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1251 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1252 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1253 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1254 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1255 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1256 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1257 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1258 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1259 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1260 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1261 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1262 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1263 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1264 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	697 1599	1 007	1 238	" "	" "	" "
1265 SPN	" "	"	6 1 55 000	-0 1698	-15 00	622 2807	0 978	1 277	324 8	107 2	289 9
" " SPE	" "	"	6 1 55 000	" "	75 00	696 1515	1 041	1 315	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	" "	"	624 0928	0 864	1 000	" "	" "	" "
1266 SPN	" "	"	6 1 55 000	0 1717	-15 00	743 4758	1 024	1 293	321 0	107 0	289 7
" " SPE	" "	"	6 1 55 000	" "	75 00	706 5759	0 938	1 117	" "	" "	" "
" " SPZ	" "	"	6 1 55 000	"							

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Correction		Seismometer Orientation (deg)	Sensitivity (volts/m.sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)	
				d	h m s								
1215	2-20	SPZ	24 SEP 1988	2268	4	8 30.000	0.0313 WWVB	-15.00	0.376	360.1	97.7	280.8	
		SPN			4	8 30.000	"	75.00	0.497	0.425	"	"	
		SPE			4	8 30.000	"	104.9737	0.486	0.401	"	"	
1216		SPZ			4	8 30.000	-0.1689	"	0.405	0.329	365.1	98.0	
		SPN			4	8 30.000	"	106.2555	0.508	0.416	"	"	
		SPE			4	8 30.000	"	75.00	0.504	0.435	"	"	
1217		SPN			4	8 30.000	-0.1924	-15.00	0.468	0.385	369.6	98.3	
		SPE			4	8 30.000	"	75.00	0.468	0.417	"	281.5	
		SPZ			4	8 30.000	"	107.6735	0.445	0.377	"	"	
1218		SPZ			4	8 30.000	-0.2002	"	102.4046	0.415	0.326	373.2	98.6
		SPN			4	8 30.000	"	-15.00	119.5301	0.518	0.463	"	"
		SPE			4	8 30.000	"	75.00	107.1711	0.534	0.444	"	"
1219		SPZ			4	8 30.000	-0.2539	"	108.2437	0.422	0.357	377.5	98.8
		SPN			4	8 30.000	"	-15.00	112.1432	0.507	0.423	"	"
		SPE			4	8 30.000	"	75.00	106.2984	0.511	0.436	"	"
1220		SPZ			4	8 30.000	0.0078	"	92.7538	0.415	0.356	380.0	99.1
		SPN			4	8 30.000	"	-15.00	85.1736	0.526	0.440	"	282.3
		SPE			4	8 30.000	"	75.00	90.0845	0.488	0.382	"	"
1221		SPZ			4	8 30.000	0.0078	"	120.8625	0.428	0.366	386.8	99.0
		SPN			4	8 30.000	"	-15.00	117.0131	0.509	0.464	"	"
		SPE			4	8 30.000	"	75.00	115.8302	0.415	0.420	"	"
1222		SPZ			4	8 30.000	0.4825 GOES	"	111.8476	0.457	0.464	388.7	99.5
		SPN			4	8 30.000	"	-15.00	112.9581	0.493	0.514	"	282.8
		SPE			4	8 30.000	"	75.00	111.3782	0.510	0.523	"	"
1223		SPZ			4	8 30.000	0.0986 WWVB	"	89.5213	0.485	0.441	392.2	99.7
		SPN			4	8 30.000	"	-15.00	110.9653	0.477	0.487	"	"
		SPE			4	8 30.000	"	75.00	100.4654	0.480	0.440	"	"
1224		SPZ			4	8 30.000	0.1768	"	99.8986	0.468	0.394	396.6	100.0
		SPN			4	8 30.000	"	-15.00	105.2339	0.509	0.407	"	283.4
		SPE			4	8 30.000	"	75.00	103.0961	0.514	0.438	"	"
1225		SPZ			4	8 30.000	-0.5778 GOES	"	113.0980	0.494	0.465	402.0	100.3
		SPN			4	8 30.000	"	-15.00	115.7602	0.480	0.424	"	"
		SPE			4	8 30.000	"	75.00	105.1737	0.392	0.343	"	"
1227		SPZ			4	8 30.000	0.1553	"	119.6034	0.426	0.393	407.8	100.8
		SPN			4	8 30.000	"	-15.00	106.0839	0.472	0.416	"	284.2
		SPE			4	8 30.000	"	75.00	118.8165	0.494	0.429	"	"
1228		SPN			4	8 30.000	0.0156 WWVB	-15.00	107.8404	0.474	0.417	411.2	101.1
		SPE			4	8 30.000	"	75.00	115.2925	0.469	0.430	"	284.5
		SPZ			4	8 30.000	"	-	100.8098	0.459	0.399	"	"
1229		SPN			4	8 45.000	0.0693	-15.00	145.0600	0.560	0.400	414.8	101.2
		SPE			4	8 45.000	"	75.00	135.9800	0.480	0.400	"	"
		SPZ			4	8 45.000	"	-	98.5121	0.471	0.362	422.8	101.5
1231		SPN			4	8 30.000	0.0179 GOES	-15.00	101.6663	0.507	0.400	"	285.1
		SPE			4	8 30.000	"	75.00	110.6077	0.386	0.339	"	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Time		Seismometer	Seismometer	Pendulum	Damping	Back
				Correction	Orientation					
						(volts m sec)	(sec)			(deg)
1232 2-20	SPN	24 SEP 1988	268	4	8 45.000	0 00000	-15.00	108.6534	0.405	285.4
	SPE			4	8 45.000	"	75.00	102.3860	0.485	"
	SPZ			4	8 45.000	"	-	97.2723	0.422	"
1233	SPN			4	8 30.000	0 0000	-15.00	98.5043	0.506	285.6
	SPE			4	8 30.000	"	75.00	89.4856	0.487	"
	SPZ			4	8 30.000	"	-	99.6476	0.416	"
1235	SPN			4	8 30.000	0 0035	GOES	-15.00	0.516	286.0
	SPE			4	8 30.000	"	75.00	102.6012	0.418	"
	SPZ			4	8 30.000	"	-	114.3616	0.476	"
1236	SPN			4	8 30.000	-0.1626	-	107.8076	0.391	"
	SPE			4	8 30.000	"	75.00	78.6.2735	0.610	286.2
	SPZ			4	8 30.000	"	-	75.2.1228	0.554	"
1240	SPN			4	8 30.000	0.1717	WWVB	-15.00	0.652	"
	SPE			4	8 30.000	"	75.00	743.4758	1.024	287.2
	SPZ			4	8 30.000	"	-	706.5759	0.938	"
1241	SPN			4	8 30.000	0.1465	-	697.1599	1.007	"
	SPE			4	8 30.000	"	15.00	622.2807	1.238	"
	SPZ			4	8 30.000	"	-	715.6757	0.652	"
1241 2-21	SPN			4	8 30.000	0.1157	GOES	-15.00	0.809	"
	SPE			4	8 30.000	"	75.00	743.2012	0.293	"
	SPZ			4	8 30.000	"	-	706.1000	0.453	"
1212	SPZ			8	3 55.000	-0.0168	-	101.4590	0.357	"
	SPN			8	3 55.000	"	75.00	113.7880	0.426	"
	SPE			8	3 55.000	"	-	101.3338	0.392	"
1213	SPZ			8	3 55.000	0.2305	WWVB	-	119.8404	"
	SPN			8	3 55.000	"	75.00	104.6157	0.475	162.1
	SPE			8	3 55.000	"	-	98.2108	0.493	"
1214	SPZ			8	3 55.000	-0.2617	-	119.9548	0.434	"
	SPN			8	3 55.000	"	75.00	98.0937	0.361	164.8
	SPE			8	3 55.000	"	-	101.3338	0.384	"
1215	SPZ			8	3 55.000	0.0319	-	111.1635	0.457	"
	SPN			8	3 55.000	"	75.00	104.5607	0.509	"
	SPE			8	3 55.000	"	-	98.0861	0.449	163.3
1216	SPZ			8	3 55.000	-0.2227	-	104.5607	0.501	"
	SPN			8	3 55.000	"	75.00	104.6157	0.539	"
	SPE			8	3 55.000	"	-	98.2108	0.492	"
1217	SPZ			8	3 55.000	0.2461	-	81.2114	0.488	"
	SPN			8	3 55.000	"	75.00	113.8685	0.376	"
	SPE			8	3 55.000	"	-	112.8435	0.452	"
1218	SPZ			8	3 55.000	-0.2305	-	104.0743	0.504	"
	SPN			8	3 55.000	"	75.00	106.3744	0.457	"
	SPE			8	3 55.000	"	-	97.5020	0.425	"
1219	SPZ			8	3 55.000	0.2773	-	107.1711	0.468	"
	SPN			8	3 55.000	"	75.00	109.2437	0.422	169.8
	SPE			8	3 55.000	"	-	112.1432	0.507	"
1220	SPZ			8	3 55.000	-15.00	-	106.2984	0.511	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Sensitivity	Pendulum	Damping	Back
		d h m s	(sec)	(sec)	(deg)	(volts m/sec)	Period	Ratio	Azimuth (deg)
1220 2-21	SP2	24 SEP 1988	268	8 3 55.000	0.0156 WWVB	-	92.7538	0.415	357.3
"	SPN	"	"	8 3 55.000	"	-15.00	85.1736	0.426	"
"	SPE	"	"	8 3 55.000	"	75.00	80.0945	0.488	"
1221	SP2	"	"	8 3 55.000	0.0313	-	120.8625	0.428	86.1
"	SPN	"	"	8 3 55.000	"	-15.00	117.0131	0.508	"
"	SPE	"	"	8 3 55.000	"	75.00	115.8302	0.490	"
1223	SP2	"	"	8 3 55.000	0.1309	-	99.5213	0.485	80.5
"	SPN	"	"	8 3 55.000	"	-15.00	110.9653	0.477	"
"	SPE	"	"	8 3 55.000	"	75.00	100.4654	0.480	"
1224	SP2	"	"	8 3 55.000	0.2148	-	99.9986	0.668	78.3
"	SPN	"	"	8 3 55.000	"	-15.00	105.2338	0.509	"
"	SPE	"	"	8 3 55.000	"	75.00	103.0961	0.514	"
1225	SPN	"	"	8 3 55.000	0.7251 GOES	-15.00	115.7602	0.480	75.6
"	SPE	"	"	8 3 55.000	"	75.00	105.1737	0.592	"
"	SP2	"	"	8 3 55.000	"	-	113.0980	0.494	"
1227	SPN	"	"	8 3 55.000	0.2128	-15.00	118.6034	0.426	"
"	SPE	"	"	8 3 55.000	"	75.00	106.0839	0.472	"
"	SP2	"	"	8 3 55.000	"	-	118.8165	0.494	"
1228	SPN	"	"	8 3 55.000	0.0078 WWVB	-15.00	107.8404	0.474	70.6
"	SPE	"	"	8 3 55.000	"	75.00	115.2925	0.469	"
"	SP2	"	"	8 3 55.000	"	-	100.8098	0.459	"
1229	SPN	"	"	8 3 55.000	0.0547	-15.00	145.0600	0.560	69.7
"	SPE	"	"	8 3 55.000	"	75.00	145.0600	0.540	"
"	SP2	"	"	8 3 55.000	"	-	135.2900	0.480	"
1231	SPN	"	"	8 3 55.000	0.0244 GOES	-15.00	98.5121	0.471	68.9
"	SPE	"	"	8 3 55.000	"	75.00	101.6633	0.507	"
"	SP2	"	"	8 3 55.000	"	-	110.6077	0.396	"
1232	SPN	"	"	8 3 58.000	0.9531 WWVB	-15.00	109.6534	0.490	68.1
"	SPE	"	"	8 3 58.000	"	75.00	102.3860	0.485	"
"	SP2	"	"	8 3 58.000	"	-	97.2723	0.422	"
1233	SPN	"	"	8 3 55.000	0.0000 NONE	-15.00	98.5043	0.506	209.2
"	SPE	"	"	8 3 55.000	"	75.00	102.6077	0.339	"
"	SP2	"	"	8 3 55.000	"	-	109.6534	0.405	"
1234	SPN	"	"	8 3 55.000	1.0156 WWVB	-15.00	107.4674	0.488	68.5
"	SPE	"	"	8 3 55.000	"	75.00	105.9664	0.488	"
"	SP2	"	"	8 3 55.000	"	-	114.1378	0.468	"
1235	SPN	"	"	8 3 55.000	0.0048 GOES	-15.00	102.6012	0.516	68.6
"	SPE	"	"	8 3 55.000	"	75.00	114.3616	0.476	"
"	SP2	"	"	8 3 55.000	"	-	107.8076	0.391	"
1236	SPN	"	"	8 3 55.000	0.2211	-15.00	78.6.2735	0.610	69.3
"	SPE	"	"	8 3 55.000	"	75.00	75.2.1228	0.554	"
"	SP2	"	"	8 3 55.000	"	-	715.6757	0.652	"
1238	SPN	"	"	8 3 55.000	0.0156 WWVB	-15.00	505.6474	0.802	71.4
"	SPE	"	"	8 3 55.000	"	75.00	694.0557	0.551	54.9
"	SP2	"	"	8 3 55.000	"	-	624.0928	0.864	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3b (continued)

Seismogram	Date	Starting Time	Time Correction (sec)	Seismometer Orientation (deg)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
1240 2-21 SPN	24 SEP 1988	268	8 3 55.000	0.1777 WWVB	-15.00	743.4758	1.024	1.293	74.7
" SPE	"	"	8 3 55.000	"	75.00	706.5759	0.938	1.117	"
" SPZ	"	"	8 3 55.000	"	"	687.1598	1.007	1.238	"
1241 " SPN	"	"	8 3 55.000	0.1992	-15.00	622.2807	0.978	1.277	76.5
" SPE	"	"	8 3 55.000	"	75.00	696.1515	1.041	1.315	"
" SPZ	"	"	8 3 55.000	"	"	835.2012	0.680	0.900	"
1211 2-22 SPN	"	"	4 5 55.000	-0.0919 GOES	-15.00	113.1000	0.453	0.475	151.1
" SPE	"	"	4 5 55.000	"	75.00	113.7880	0.357	0.426	"
" SPZ	"	"	4 5 55.000	"	"	101.4580	0.282	0.378	"
1212 " SPZ	"	"	4 5 55.000	-0.0135	"	95.8404	0.457	0.449	147.1
" SPN	"	"	4 5 55.000	"	-15.00	104.6157	0.501	0.539	"
" SPE	"	"	4 5 55.000	"	75.00	98.2108	0.493	0.492	"
1213 " SPZ	"	"	4 5 55.000	0.1688 WWVB	"	119.9548	0.434	0.361	143.0
" SPN	"	"	4 5 55.000	"	-15.00	98.0837	0.509	0.384	"
" SPE	"	"	4 5 55.000	"	75.00	111.1635	0.542	0.457	"
1214 " SPZ	"	"	4 5 55.000	0 2158	"	89.0861	0.427	0.320	138.9
" SPN	"	"	4 5 55.000	"	-15.00	104.5607	0.501	0.434	"
" SPE	"	"	4 5 55.000	"	75.00	91.2114	0.488	0.418	"
1215 " SPZ	"	"	4 5 55.000	0.0313	"	113.8695	0.376	0.333	135.3
" SPN	"	"	4 5 55.000	"	-15.00	112.8435	0.497	0.425	"
" SPE	"	"	4 5 55.000	"	75.00	120.7941	0.486	0.401	"
1216 " SPZ	"	"	4 5 55.000	-0.1689	"	104.9737	0.405	0.329	130.0
" SPN	"	"	4 5 55.000	"	-15.00	106.2555	0.508	0.416	"
" SPE	"	"	4 5 55.000	"	75.00	104.0743	0.504	0.435	"
1217 " SPN	"	"	4 5 55.000	-0.1924	-15.00	106.3744	0.468	0.385	125.0
" SPE	"	"	4 5 55.000	"	75.00	115.5793	0.468	0.417	"
" SPZ	"	"	4 5 55.000	"	"	107.6735	0.445	0.377	"
1218 " SPZ	"	"	4 5 55.000	-0.2002	-15.00	102.4046	0.415	0.326	121.0
" SPN	"	"	4 5 55.000	"	75.00	119.5301	0.538	0.463	"
" SPE	"	"	4 5 55.000	"	75.00	107.1711	0.534	0.444	"
1219 " SPZ	"	"	4 5 55.000	-0.2539	"	109.2437	0.422	0.357	116.6
" SPN	"	"	4 5 55.000	"	-15.00	112.1432	0.507	0.423	"
" SPE	"	"	4 5 55.000	"	75.00	106.2984	0.511	0.436	"
1220 " SPZ	"	"	4 5 55.000	0.0078	"	92.7538	0.415	0.356	113.6
" SPN	"	"	4 5 55.000	"	-15.00	85.1736	0.526	0.440	"
" SPE	"	"	4 5 55.000	"	75.00	90.0945	0.488	0.382	"
1221 " SPZ	"	"	4 5 55.000	0.0078	"	120.8625	0.428	0.366	107.4
" SPN	"	"	4 5 55.000	"	-15.00	117.0131	0.509	0.464	"
" SPE	"	"	4 5 55.000	"	75.00	115.8302	0.490	0.420	"
1222 " SPZ	"	"	4 5 55.000	0.4825 GOES	"	111.8476	0.457	0.464	104.4
" SPN	"	"	4 5 55.000	"	-15.00	112.9581	0.493	0.514	"
" SPE	"	"	4 5 55.000	0.0996 WWVB	-15.00	111.3782	0.510	0.523	"
1223 " SPZ	"	"	4 5 55.000	"	75.00	110.9653	0.477	0.487	100.6
" SPN	"	"	4 5 55.000	"	"	100.4654	0.480	0.440	"

Seismometer orientation is measured as degrees clockwise from geographic north.

Table 3b. (continued)

Seismogram	Date	Starting Time	Time	Correction		Seismometer	Orientation	Sensitivity	Pendulum	Damping	Azimuth
				(sec)	(sec)						
1224	2-22	SPZ	24 SEP 1988	268	4	55.000	0.1689	WWVB	-15.00	0.468	95.8
		SPN			4	55.000	..	..	99.9986	0.394	307.3
		SPE			4	55.000	..	..	105.2339	0.509	126.6
		SPZ			4	55.000	0.5778	GOES	75.00	0.514	..
1225		SPZ			4	55.000	..	..	103.0961	0.428	..
		SPN			4	55.000	..	..	113.0980	0.494	126.7
		SPE			4	55.000	..	..	115.7602	0.480	..
		SPZ			4	55.000	..	..	105.1737	0.392	..
1227		SPZ			4	55.000	0.1553	..	119.6034	0.426	126.1
		SPE			4	55.000	..	..	106.0839	0.472	..
		SPZ			4	55.000	..	..	118.8165	0.494	..
1228		SPZ			4	55.000	0.0156	WWVB	-15.00	0.429	..
		SPN			4	55.000	..	..	107.8404	0.474	125.8
		SPE			4	55.000	..	..	115.2925	0.469	..
		SPZ			4	55.000	..	..	100.8088	0.459	..
1229		SPN			4	3.000	0.0537	..	145.0600	0.560	125.9
		SPE			4	3.000	..	..	145.0600	0.400	..
		SPZ			4	3.000	..	..	135.8800	0.540	..
1231		SPN			4	3.000	..	..	135.8800	0.480	..
		SPE			4	3.000	..	..	135.8800	0.400	..
		SPZ			4	3.000	..	..	135.8800	0.471	..
1232		SPN			4	55.000	0.0179	GOES	-15.00	0.362	67.4
		SPE			4	55.000	..	..	101.6663	0.507	126.6
		SPZ			4	55.000	..	..	110.6077	0.386	..
		SPN			4	55.000	-0.8072	WWVB	-15.00	0.490	126.2
		SPE			4	55.000	..	..	102.3860	0.485	..
		SPZ			4	55.000	..	..	97.2723	0.422	..
1233		SPN			4	55.000	0.0000	NONE	15.00	0.506	59.0
		SPE			4	55.000	..	..	98.5043	0.425	306.8
		SPZ			4	55.000	..	..	89.4856	0.487	126.4
1235		SPN			4	55.000	0.0035	GOES	-15.00	0.479	..
		SPE			4	55.000	..	..	102.6012	0.516	..
		SPZ			4	55.000	..	..	114.3616	0.418	..
		SPN			4	55.000	..	..	97.2723	0.338	..
		SPE			4	55.000	..	..	98.5043	0.425	..
		SPZ			4	55.000	..	..	89.4856	0.379	..
1236		SPN			4	55.000	-0.1626	..	99.6476	0.416	..
		SPE			4	55.000	..	..	102.6012	0.340	..
		SPZ			4	55.000	..	..	114.3616	0.418	..
1240		SPN			4	55.000	0.1717	WWVB	-15.00	0.418	52.0
		SPE			4	55.000	..	..	107.8076	0.339	307.0
		SPZ			4	55.000	..	..	78.6.2735	0.610	126.6
		SPN			4	55.000	..	..	75.00	0.554	..
		SPE			4	55.000	..	..	715.6757	0.652	..
		SPZ			4	55.000	..	..	102.6012	0.416	..
		SPN			4	55.000	..	..	97.2723	0.338	..
		SPE			4	55.000	..	..	98.5043	0.425	..
		SPZ			4	55.000	..	..	89.4856	0.379	..
1241		SPN			4	55.000	0.1465	..	102.6012	0.516	..
		SPE			4	55.000	..	..	114.3616	0.418	..
		SPZ			4	55.000	..	..	97.2723	0.338	..

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3c  
Seismogram Constants for Deployment Three

Table 3c Seismogram Constants for Deployment Three

Seismogram	Starting Time			Time			Seismometer			Pendulum			Back Azimuth (deg)		
	Date	d	h m s	Correction (sec)	Orientation (deg)	Sensitivity (volts m sec)	Period (sec)	Distance (km)	Azimuth (deg)	Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Period (sec)	Damping Ratio
1301 3 10 SPZ	30 SEP 1988	274	6 5 55.000	-0.4113	WWVB	-	-14.00	0.494	0.465	8.5	265.5	85.5	-	-	
- - - SPE	- - -	- - -	6 5 55.000	-	-	76.00	115.7602	0.480	0.426	-	-	-	-	-	-
1302 - - - SPZ	- - -	- - -	6 5 55.000	0.1187	-	-	105.1737	0.392	0.343	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	-14.00	104.5628	0.465	0.389	11.9	262.4	82.3	-	-	-
1303 - - - SPZ	- - -	- - -	6 5 55.000	0.1387	-	76.00	101.6230	0.516	0.411	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	-14.00	99.4546	0.481	0.444	16.1	63.6	83.5	-	-	-
1304 - - - SPZ	- - -	- - -	6 5 55.000	-	-	76.00	111.6448	0.478	0.481	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	0.1387	-	-	99.4548	0.480	0.443	-	-	-	-	-	-
1305 - - - SPZ	- - -	- - -	6 5 55.000	-	-	-14.00	112.4042	0.458	0.468	19.3	260.2	80.0	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	76.00	112.0597	0.493	0.508	-	-	-	-	-	-
1306 - - - SPZ	- - -	- - -	6 5 55.000	-	-	-14.00	114.3942	0.510	0.538	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	0.0587	-	-	121.3985	0.427	0.361	23.0	253.0	72.8	-	-	-
1307 - - - SPZ	- - -	- - -	6 5 55.000	-	-	-14.00	115.4130	0.506	0.447	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	76.00	118.3055	0.490	0.429	-	-	-	-	-	-
1308 - - - SPZ	- - -	- - -	6 5 55.000	0.1186	-	-	92.7538	0.415	0.356	29.0	248.4	68.2	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	-14.00	85.1735	0.526	0.440	-	-	-	-	-	-
1309 - - - SPZ	- - -	- - -	6 5 55.000	0.0000	-	76.00	80.0945	0.488	0.382	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	-14.00	109.2437	0.422	0.357	32.8	251.0	70.7	-	-	-
1310 - - - SPZ	- - -	- - -	6 5 55.000	-	-	76.00	112.1432	0.507	0.423	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	-14.00	106.2984	0.511	0.436	-	-	-	-	-	-
1311 - - - SPZ	- - -	- - -	6 5 55.000	-	-	76.00	109.2437	0.422	0.357	35.8	253.1	72.8	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	0.1611	-	-	112.1432	0.507	0.423	-	-	-	-	-	-
1312 - - - SPZ	- - -	- - -	6 5 55.000	-	-	-14.00	106.2984	0.511	0.436	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	-14.00	108.3807	0.468	0.386	38.2	253.4	73.0	-	-	-
1313 - - - SPZ	- - -	- - -	6 5 55.000	-	-	76.00	118.1.22	0.465	0.419	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	-	109.7043	0.447	0.382	-	-	-	-	-	-
1314 - - - SPZ	- - -	- - -	6 5 55.000	0.0514	-	-	108.8102	0.405	0.335	41.6	254.8	74.4	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	-14.00	109.9149	0.501	0.416	-	-	-	-	-	-
1315 - - - SPZ	- - -	- - -	6 5 55.000	-	-	76.00	106.6236	0.502	0.440	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	0.8114	-	-	119.7059	0.378	0.336	44.5	255.2	74.9	-	-	-
1316 - - - SPZ	- - -	- - -	6 5 55.000	-	-	-14.00	111.1007	0.496	0.424	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	76.00	122.3248	0.490	0.410	-	-	-	-	-	-
1317 - - - SPZ	- - -	- - -	6 5 55.000	-0.2328	-	-	183.7793	0.422	0.324	47.3	255.0	74.6	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-0.1714	-	-14.00	107.2989	0.498	0.437	-	-	-	-	-	-
1318 - - - SPZ	- - -	- - -	6 5 55.000	-	-	76.00	93.9411	0.489	0.426	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	0.1699	-	-	121.0679	0.441	0.373	50.1	256.7	76.3	-	-	-
1319 - - - SPZ	- - -	- - -	6 5 55.000	-	-	14.00	98.8521	0.506	0.382	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	76.00	110.1773	0.555	0.458	-	-	-	-	-	-
1320 - - - SPZ	- - -	- - -	6 5 55.000	0.0000	NONE	-14.00	113.1000	0.493	0.479	56.1	258.4	78.0	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	-	-	76.00	113.7880	0.357	0.426	-	-	-	-	-	-
1321 - - - SPZ	- - -	- - -	6 5 55.000	-	-	-14.00	101.4580	0.392	0.338	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 55.000	0.0165	WWVB	-14.00	102.2861	0.487	0.387	58.6	260.0	79.5	-	-	-
1322 - - - SPZ	- - -	- - -	6 5 58.000	-	-	76.00	117.5009	0.502	0.405	-	-	-	-	-	-
- - - SPE	- - -	- - -	6 5 58.000	-	-	-	102.1071	0.408	0.346	-	-	-	-	-	-

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Sensitivity	Fendulum	Damping	Distance	Azimuth
		h m s	(sec)	(deg)	(volts/m/sec)	(volts/m/sec)	Period	Ratio	(km)	(deg)
1317 3-10	SPN	30 SEP 1968	274	6 55.000	0.0831 GOES	-14.00	119.6034	0.426	0.383	61.7
-	SPE	-	-	6 55.000	-	76.00	106.0839	0.472	0.416	-
-	SPZ	-	-	6 55.000	-	-	118.8165	0.484	0.429	-
1323	SPN	-	-	6 55.000	-1.3457 WWVB	-14.00	97.4227	0.511	0.424	83.5
-	SPE	-	-	6 55.000	-	76.00	88.3918	0.488	0.372	-
-	SPZ	-	-	6 55.000	-	-	98.3327	0.422	0.345	-
1324	SPN	-	-	6 55.000	0.1284	-14.00	145.0600	0.540	0.400	84.1
-	SPE	-	-	6 55.000	-	76.00	148.5800	0.540	0.400	-
-	SPZ	-	-	6 55.000	-	-	135.8985	0.580	0.400	-
1325	SPN	-	-	6 55.000	0.0000	-14.00	105.7116	0.515	0.430	86.6
-	SPE	-	-	6 55.000	-	76.00	118.0167	0.472	0.425	-
-	SPZ	-	-	6 55.000	-	-	112.0626	0.395	0.368	-
1326	SPN	-	-	6 55.000	-0.1716	-14.00	786.2735	0.610	0.823	89.5
-	SPE	-	-	6 55.000	-	76.00	752.1228	0.554	1.952	-
-	SPZ	-	-	6 55.000	-	-	715.6757	0.652	0.809	-
1327	SPN	-	-	6 55.000	-0.3016	-14.00	689.6237	0.838	0.633	91.0
-	SPE	-	-	6 55.000	-	76.00	763.6659	1.032	1.294	-
-	SPZ	-	-	6 55.000	-	-	718.0598	1.003	1.238	-
1328	SPN	-	-	6 55.000	-0.0316	-14.00	505.6474	0.902	1.454	94.4
-	SPE	-	-	6 55.000	-	76.00	694.0557	0.551	0.681	-
-	SPZ	-	-	6 55.000	-	-	624.0828	0.864	1.000	-
1331	SPN	-	-	6 55.000	-0.1916	-14.00	622.2807	0.978	1.277	104.8
-	SPE	-	-	6 55.000	-	76.00	686.1515	1.041	1.315	-
-	SPZ	-	-	6 55.000	-	-	835.2012	0.680	0.900	-
1330	SPN	-	-	6 40.000	15.2600 GOES	-14.00	576.6407	1.042	0.325	100.9
-	SPE	-	-	6 40.000	-	76.00	554.5508	1.042	0.314	-
-	SPZ	-	-	6 40.000	-	-	553.7008	1.042	0.321	-
1302 3-14	SPZ	-	-	4 55.000	0.1187 WWVB	-	98.2104	0.465	0.389	76.6
-	SPN	-	-	4 55.000	-	-14.00	104.5629	0.509	0.411	-
-	SPE	-	-	4 55.000	-	76.00	101.6230	0.516	0.438	-
-	SPZ	-	-	4 55.000	-	-	98.4546	0.481	0.444	-
-	SPN	-	-	4 55.000	0.1087	-	111.6448	0.478	0.481	-
-	SPE	-	-	4 55.000	-	76.00	98.4548	0.480	0.443	-
-	SPZ	-	-	4 55.000	0.1187	-	112.4042	0.459	0.468	-
-	SPN	-	-	4 55.000	-	-14.00	112.0597	0.483	0.508	-
-	SPE	-	-	4 55.000	-	76.00	114.3842	0.510	0.538	-
-	SPZ	-	-	4 55.000	0.0387	-	121.3985	0.427	0.361	-
-	SPN	-	-	4 55.000	-	-14.00	115.4130	0.506	0.447	-
-	SPE	-	-	4 55.000	-	76.00	118.3055	0.490	0.429	-
-	SPZ	-	-	4 55.000	0.0086	-	92.7538	0.415	0.356	-
-	SPN	-	-	4 55.000	-	-14.00	85.1735	0.526	0.440	-
-	SPE	-	-	4 55.000	-	76.00	90.0845	0.488	0.382	-
-	SPZ	-	-	4 55.000	0.0000	-	108.2437	0.422	0.357	57.5
1307	SPN	-	-	4 55.000	-	-14.00	112.1432	0.507	0.423	-
-	SPE	-	-	4 55.000	-	76.00	106.2984	0.511	0.436	-

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Sensitivity	Pendulum	Damping	Distance	Azimuth	Back Azimuth
		d h m s		(sec)	Orientation (deg)	(volts/m/sec)	Period (sec)	Ratio	(km)	(deg)	(deg)
1308 3-14	SP2	30 SEP 1988	274	4 55.000	-0.1514	WWVB	-14.00	105.7755	0.412	54.3	84.5
..	SPN	-	-	4 55.000	..	..	222.8554	0.535	0.470	..	275.0
..	SPE	-	-	4 55.000	..	..	108.5663	0.535	0.450	..	..
1309	SPN	-	-	4 55.000	-0.1614	..	-14.00	108.3807	0.468	38.6	95.3
..	SPE	-	-	4 55.000	..	..	76.00	118.1922	0.465	0.419	..
..	SP2	-	-	4 55.000	..	..	-	108.7043	0.447	0.382	..
1310	SP2	-	-	4 55.000	-0.0814	..	-14.00	108.8102	0.405	0.335	48.5
..	SPN	-	-	4 55.000	..	..	76.00	108.8148	0.501	0.416	..
..	SPE	-	-	4 55.000	..	..	-	106.6236	0.502	0.440	..
1312	SP2	-	-	4 55.000	-0.2214	..	-	183.7793	0.422	0.324	43.2
..	SPN	-	-	4 55.000	..	..	-14.00	107.2989	0.499	0.437	..
..	SPE	-	-	4 55.000	..	..	76.00	93.9411	0.489	0.426	..
1313	SP2	-	-	4 55.000	0.1586	..	-	121.0678	0.441	0.373	40.1
..	SPN	-	-	4 55.000	..	..	-14.00	98.8521	0.506	0.382	..
..	SPE	-	-	4 55.000	..	..	76.00	110.1773	0.555	0.459	..
1315	SPN	-	-	4 55.000	0.0000	NONE	-14.00	113.1000	0.493	0.479	33.9
..	SPE	-	-	4 55.000	..	..	76.00	113.7880	0.557	0.426	..
..	SP2	-	-	4 55.000	..	..	-	101.4580	0.392	0.338	..
1317	SPN	-	-	4 55.000	0.0681	GOES	-14.00	219.6034	0.426	0.393	27.5
..	SPE	-	-	4 55.000	..	..	76.00	106.0838	0.472	0.416	..
..	SP2	-	-	4 55.000	..	..	-	218.8165	0.494	0.429	..
1322	SPN	-	-	4 6 2.000	-0.0115	WWVB	-14.00	107.7476	0.490	0.386	12.5
..	SPE	-	-	4 6 2.000	..	..	76.00	100.3686	0.480	0.410	..
..	SP2	-	-	4 6 2.000	..	..	-	96.8154	0.416	0.318	..
1323	SPN	-	-	4 55.000	-1.1115	..	-14.00	87.4227	0.511	0.424	9.4
..	SPE	-	-	4 55.000	..	..	76.00	125.7116	0.468	0.372	..
..	SP2	-	-	4 55.000	..	..	-	88.3327	0.422	0.345	..
1324	SPN	-	-	4 55.000	0.0984	..	-14.00	145.0600	0.540	0.400	5.0
..	SPE	-	-	4 55.000	..	..	76.00	149.5900	0.540	0.400	..
..	SP2	-	-	4 55.000	..	..	-	135.8985	0.580	0.400	..
1325	SPN	-	-	4 55.000	0.0000	..	-14.00	105.7116	0.515	0.430	2.4
..	SPE	-	-	4 55.000	..	..	76.00	118.8167	0.472	0.425	..
..	SP2	-	-	4 55.000	..	..	-	112.0626	0.395	0.368	..
1326	SPN	-	-	4 55.000	-0.1416	..	-14.00	78.62735	0.610	0.623	1.5
..	SPE	-	-	4 55.000	-0.020	..	76.00	75.21228	0.554	0.552	..
..	SP2	-	-	4 55.000	..	..	-	715.6757	0.652	0.808	..
1328	SPN	-	-	4 55.000	-0.0216	..	-14.00	505.6474	0.802	1.454	8.1
..	SPE	-	-	4 55.000	..	..	76.00	694.0557	0.551	0.681	..
..	SP2	-	-	4 55.000	..	..	-	624.0828	0.864	1.000	..
1329	SPN	-	-	4 55.000	-0.0166	..	-14.00	743.4758	1.024	1.283	10.7
..	SPE	-	-	4 55.000	..	..	76.00	706.5760	0.938	1.117	..
..	SP2	-	-	4 55.000	-0.4113	..	-	697.1588	1.007	1.238	..
1330 3-15	SP2	-	-	6 3 55.000	-0.4113	..	6 3 55.000	113.0880	0.484	0.465	122.6
..	SPN	-	-	6 3 55.000	..	..	-14.00	115.7602	0.480	0.426	..
..	SPE	-	-	6 3 55.000	..	..	76.00	105.1737	0.392	0.342	..

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Seismometer		Pendulum	Damping	Back
				Correction	Orientation			
			(sec)	(deg)	(volts/m/sec)	(sec)	(deg)	(deg)
1302 3-15	SP2	30 SEP 1988	274	6 55.000	0.1187 WWVB	- 2104	0.465	85.7
..	SPN	..	..	6 55.000	..	-14.00	104.5629	..
..	SPE	..	..	6 55.000	..	76.00	0.508	..
1303	SP2	..	..	6 55.000	0.1387	- 101.6230	0.516	..
..	SPN	..	..	6 55.000	..	-14.00	98.4546	0.438
..	SPE	..	..	6 55.000	..	76.00	0.481	115.3
1304	SP2	..	..	6 55.000	0.1387	- 111.6448	0.444	..
..	SPN	..	..	6 55.000	..	-14.00	99.4548	0.491
..	SPE	..	..	6 55.000	..	76.00	0.480	0.443
1305	SP2	..	..	6 55.000	0.0587	- 112.4042	0.459	..
..	SPN	..	..	6 55.000	..	-14.00	112.4042	0.468
..	SPE	..	..	6 55.000	..	76.00	0.493	0.508
1306	SP2	..	..	6 55.000	0.0186	- 114.00	114.3842	0.510
..	SPN	..	..	6 55.000	..	76.00	0.538	..
..	SPE	..	..	6 55.000	..	- 121.3985	0.427	..
1307	SP2	..	..	6 55.000	0.0587	- 115.4130	0.361	..
..	SPN	..	..	6 55.000	..	-14.00	110.1	0.447
..	SPE	..	..	6 55.000	..	76.00	0.506	..
1308	SP2	..	..	6 55.000	0.0186	- 118.3055	0.490	..
..	SPN	..	..	6 55.000	..	-14.00	92.7538	0.429
..	SPE	..	..	6 55.000	..	76.00	0.526	..
1309	SP2	..	..	6 55.000	0.0000	- 108.2437	0.488	..
..	SPN	..	..	6 55.000	..	-14.00	106.0	0.440
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1310	SP2	..	..	6 55.000	-0.1611	- 108.2437	0.422	..
..	SPN	..	..	6 55.000	..	-14.00	80.0945	0.440
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1311	SP2	..	..	6 55.000	-0.0514	- 106.2984	0.422	..
..	SPN	..	..	6 55.000	-0.1714	-14.00	102.0	0.257
..	SPE	..	..	6 55.000	..	76.00	0.423	..
1312	SP2	..	..	6 55.000	-0.0514	- 112.1432	0.507	..
..	SPN	..	..	6 55.000	..	-14.00	106.0	0.356
..	SPE	..	..	6 55.000	..	76.00	101.6	..
1313	SP2	..	..	6 55.000	-0.8614	- 108.2437	0.440	..
..	SPN	..	..	6 55.000	..	-14.00	80.0945	0.440
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1314	SP2	..	..	6 55.000	-0.2382	- 108.3807	0.422	..
..	SPN	..	..	6 55.000	..	-14.00	102.1	0.257
..	SPE	..	..	6 55.000	..	76.00	0.423	..
1315	SP2	..	..	6 55.000	-0.8614	- 108.3807	0.507	..
..	SPN	..	..	6 55.000	..	-14.00	106.0	0.356
..	SPE	..	..	6 55.000	..	76.00	101.6	..
1316	SP2	..	..	6 55.000	-0.0514	- 118.1922	0.436	..
..	SPN	..	..	6 55.000	..	-14.00	108.2437	0.422
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1317	SP2	..	..	6 55.000	-0.0514	- 108.8102	0.423	..
..	SPN	..	..	6 55.000	..	-14.00	106.0	0.356
..	SPE	..	..	6 55.000	..	76.00	0.436	..
1318	SP2	..	..	6 55.000	-0.8614	- 109.7043	0.447	..
..	SPN	..	..	6 55.000	..	-14.00	108.8102	0.405
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1319	SP2	..	..	6 55.000	-0.0514	- 108.3807	0.501	..
..	SPN	..	..	6 55.000	..	-14.00	106.0	0.356
..	SPE	..	..	6 55.000	..	76.00	0.440	..
1320	SP2	..	..	6 55.000	-0.8614	- 108.3807	0.419	..
..	SPN	..	..	6 55.000	..	-14.00	109.7043	0.422
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1321	SP2	..	..	6 55.000	-0.0514	- 108.8102	0.447	..
..	SPN	..	..	6 55.000	..	-14.00	109.7043	0.422
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1322	SP2	..	..	6 55.000	-0.8614	- 118.1922	0.440	..
..	SPN	..	..	6 55.000	..	-14.00	108.8102	0.422
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1323	SP2	..	..	6 55.000	-0.0514	- 119.7058	0.436	..
..	SPN	..	..	6 55.000	..	-14.00	111.1007	0.466
..	SPE	..	..	6 55.000	..	76.00	0.496	..
1324	SP2	..	..	6 55.000	-0.8614	- 119.7058	0.436	..
..	SPN	..	..	6 55.000	..	-14.00	111.1007	0.466
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1325	SP2	..	..	6 55.000	-0.0514	- 118.7783	0.422	..
..	SPN	..	..	6 55.000	..	-14.00	112.3246	0.422
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1326	SP2	..	..	6 55.000	-0.8614	- 118.7783	0.422	..
..	SPN	..	..	6 55.000	..	-14.00	112.3246	0.422
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1327	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.499	..
1328	SP2	..	..	6 55.000	-0.8614	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1329	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1330	SP2	..	..	6 55.000	-0.8614	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1331	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1332	SP2	..	..	6 55.000	-0.8614	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1333	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1334	SP2	..	..	6 55.000	-0.8614	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1335	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1336	SP2	..	..	6 55.000	-0.8614	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1337	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1338	SP2	..	..	6 55.000	-0.8614	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1339	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1340	SP2	..	..	6 55.000	-0.8614	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1341	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1342	SP2	..	..	6 55.000	-0.8614	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1343	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1344	SP2	..	..	6 55.000	-0.8614	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00	0.488	..
1345	SP2	..	..	6 55.000	-0.0514	- 117.2988	0.437	..
..	SPN	..	..	6 55.000	..	-14.00	119.7058	0.378
..	SPE	..	..	6 55.000	..	76.00</td		

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Correct	Seismometer	Sensitivity	Pendulum	Damping	Distance	Azimuth	Back	
		h m s	(sec)	(deg)	(volts/m/sec)	(volts/m/sec)	Period	Ratio	(km)	(deg)	Azimuth (deg)	
1323	3-15 SPN	30 SEP 1988	274	6 3 55.000	-1.3457 WWVB	-14.00	87.4227	0.511	55.1	111.0	281.4	
..	.. SPE	..	..	6 3 55.000	..	76.00	58.3918	0.488	0.372	..	..	
..	.. SP2	..	..	6 3 55.000	..	-	88.3327	0.422	0.345	..	..	
1324	.. SPN	..	..	6 3 55.000	0.1284	-14.00	145.0600	0.540	0.400	50.7	112.2	
..	.. SPE	..	..	6 3 55.000	..	76.00	149.5900	0.540	0.400	..	..	
..	.. SP2	..	..	6 3 55.000	..	-	135.9995	0.580	0.400	..	..	
1325	.. SPN	..	..	6 3 55.000	0.0000	-14.00	105.7116	0.515	0.430	48.1	112.6	
..	.. SPE	..	..	6 3 55.000	..	76.00	118.0167	0.472	0.425	..	..	
..	.. SP2	..	..	6 3 55.000	..	-	112.0826	0.395	0.368	..	..	
1326	.. SPN	..	..	6 3 55.000	-0.1716	-14.00	786.2735	0.610	0.823	44.3	111.4	
..	.. SPE	..	..	6 3 55.000	..	76.00	752.1228	0.554	1.952	..	..	
..	.. SP2	..	..	6 3 55.000	..	-	715.6757	0.652	0.809	..	..	
1327	.. SPN	..	..	6 3 55.000	-0.3016	-14.00	688.6237	0.838	1.063	41.7	108.2	
..	.. SPE	..	..	6 3 55.000	..	76.00	763.6659	1.032	1.294	..	..	
..	.. SP2	..	..	6 3 55.000	..	-	719.0599	1.003	1.236	..	..	
1328	.. SPN	..	..	6 3 55.000	-0.0316	-14.00	505.6474	0.902	1.454	38.1	108.3	
..	.. SPE	..	..	6 3 55.000	..	76.00	684.0557	0.551	0.681	..	..	
..	.. SP2	..	..	6 3 55.000	..	-	624.0928	0.864	1.000	..	..	
1329	.. SPN	..	..	6 4 0.000	-0.1916	-14.00	622.2807	0.978	1.277	27.1	108.3	
..	.. SPE	..	..	6 3 55.000	..	76.00	696.1515	1.041	1.315	..	..	
..	.. SP2	..	..	6 3 55.000	..	-	835.2012	0.680	0.825	..	..	
1330	.. SPN	..	..	6 3 40.000	15.2600 GOES	-14.00	576.6407	1.042	0.325	31.4	110.3	
..	.. SPE	..	..	6 3 40.000	..	76.00	554.5508	1.042	0.314	..	..	
..	.. SP2	..	..	6 3 40.000	..	-	553.7008	1.042	0.321	..	..	
1331	.. SPN	..	..	6 1 55.000	-0.4113 WWVB	-	113.0880	0.494	0.465	164.4	96.9	
..	.. SPE	..	..	6 1 55.000	..	-14.00	115.7602	0.480	0.426	..	..	
..	.. SP2	..	..	6 1 55.000	..	76.00	105.1737	0.392	0.343	..	..	
1332	.. SPN	..	..	6 1 55.000	0.1187	-	98.2104	0.465	0.389	161.2	97.4	
..	.. SPE	..	..	6 1 55.000	..	-14.00	104.5628	0.509	0.411	..	..	
..	.. SP2	..	..	6 1 55.000	..	76.00	101.6230	0.516	0.438	..	..	
1333	.. SPN	..	..	6 1 55.000	0.1387	-14.00	99.4546	0.481	0.444	157.1	97.7	
..	.. SPE	..	..	6 1 55.000	..	76.00	111.6448	0.478	0.491	..	..	
..	.. SP2	..	..	6 1 55.000	..	-	92.4548	0.480	0.443	..	..	
1334	.. SPN	..	..	6 1 55.000	0.1387	-	112.4042	0.459	0.468	154.4	98.4	
..	.. SPE	..	..	6 1 55.000	..	-14.00	112.0587	0.483	0.506	..	..	
..	.. SP2	..	..	6 1 55.000	..	76.00	114.3942	0.510	0.538	..	..	
1335	.. SPN	..	..	6 1 55.000	0.0587	-	14.00	111.6448	0.478	0.427	152.1	98.9
..	.. SPE	..	..	6 1 55.000	..	76.00	115.4130	0.506	0.447	..	..	
..	.. SP2	..	..	6 1 55.000	..	-	118.3055	0.490	0.429	..	..	
1336	.. SPN	..	..	6 1 55.000	0.0186	-	92.7538	0.415	0.356	148.1	101.8	
..	.. SPE	..	..	6 1 55.000	..	-14.00	85.1735	0.526	0.440	..	..	
..	.. SP2	..	..	6 1 55.000	..	76.00	121.3985	0.427	0.361	..	..	
1337	.. SPN	..	..	6 1 55.000	0.0078	-	90.0845	0.488	0.382	144.1	102.2	
..	.. SPE	..	..	6 1 55.000	..	-	108.2437	0.422	0.357	..	..	
..	.. SP2	..	..	6 1 55.000	..	-14.00	112.1432	0.507	0.423	..	..	
..	.. SPN	..	..	6 1 55.000	..	76.00	106.2864	0.511	0.436	..	..	

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Seismometer		Pendulum	Damping	Azimuth	Azimuth
				Correction	Orientation				
				(sec)	(deg)	Sensitivity	Period	Distance	Azimuth
						(volts/m/sec)	(sec)	(km)	(deg)
1308 3-16 SP2	30 SEP 1988	274	6 1 55.000	-0.1611	WWVB	-	0.422	140.9	102.4
.. SPN	..	..	6 1 55.000	..	..	-14.00	112.1432	0.507	0.423
.. SFE	..	..	6 1 55.000	..	..	76.00	106.2884	0.511	0.436
1309 .. SPN	..	..	6 1 55.000	-0.1714	..	-14.00	108.3807	0.468	138.8
.. SFE	..	..	6 1 55.000	..	..	76.00	118.1922	0.465	0.419
.. SP2	..	..	6 1 55.000	..	..	-	108.7043	0.447	0.382
1310 .. SP2	..	..	6 1 55.000	-0.0514	..	-	108.8102	0.405	0.335
.. SFE	..	..	6 1 55.000	..	..	-14.00	108.8148	0.501	0.416
.. SPN	..	..	6 1 55.000	..	..	76.00	106.6236	0.502	0.440
1311 .. SP2	..	..	6 1 55.000	-0.8614	..	-	116.7058	0.378	132.7
.. SPN	..	..	6 1 55.000	..	..	-14.00	111.1007	0.486	0.424
.. SFE	..	..	6 1 55.000	..	..	76.00	122.3248	0.420	0.410
1312 .. SP2	..	..	6 1 55.000	-0.2382	..	-	183.7783	0.422	0.324
.. SPN	..	..	6 1 55.000	..	..	-14.00	107.2989	0.499	0.437
.. SFE	..	..	6 1 55.000	..	..	76.00	93.8411	0.489	0.426
1313 .. SP2	..	..	6 1 55.000	0.1698	..	-	121.0679	0.441	0.273
.. SPN	..	..	6 1 55.000	..	..	-14.00	98.8521	0.506	0.382
.. SFE	..	..	6 1 55.000	..	..	76.00	110.1773	0.555	0.458
1314 .. SP2	..	..	6 1 55.000	-87.4114	..	-	87.6544	0.460	0.483
.. SPN	..	..	6 1 55.000	..	..	-14.00	102.5812	0.505	0.544
.. SFE	..	..	6 1 55.000	..	..	76.00	96.8535	0.492	0.499
1315 .. SPN	..	..	6 1 55.000	0.0000	NONE	-14.00	113.1000	0.493	0.478
.. SFE	..	..	6 1 55.000	..	..	76.00	113.7880	0.357	0.426
.. SP2	..	..	6 1 55.000	..	..	-	101.4580	0.392	0.338
1316 .. SPN	..	..	6 2 10.000	-0.0165	WWVB	-14.00	102.2861	0.487	0.397
.. SFE	..	..	6 2 10.000	..	..	76.00	117.5009	0.502	0.405
.. SP2	..	..	6 2 10.000	..	..	-	102.1071	0.408	0.346
1317 .. SPN	..	..	6 1 55.000	0.0831	GOES	-14.00	119.6034	0.426	0.393
.. SFE	..	..	6 1 55.000	..	..	76.00	106.0839	0.472	0.416
.. SP2	..	..	6 1 55.000	..	..	-	118.8165	0.494	0.429
1323 .. SPN	..	..	6 1 55.000	-1.3457	WWVB	-14.00	97.4227	0.511	0.424
.. SFE	..	..	6 1 55.000	..	..	76.00	88.3818	0.468	0.372
.. SP2	..	..	6 1 55.000	..	..	-	98.3327	0.422	0.345
1324 .. SPN	..	..	6 1 55.000	0.1284	..	-14.00	145.0600	0.540	0.400
.. SFE	..	..	6 1 55.000	..	..	76.00	148.5900	0.540	0.400
.. SP2	..	..	6 1 55.000	..	..	-	135.8885	0.580	0.400
1325 .. SPN	..	..	6 1 55.000	0.0000	..	-14.00	105.7116	0.515	0.430
.. SFE	..	..	6 1 55.000	..	..	76.00	116.0167	0.472	0.425
.. SP2	..	..	6 1 55.000	..	..	-	112.0628	0.395	0.368
1326 .. SPN	..	..	6 1 55.000	-0.1716	..	-14.00	786.2735	0.610	0.623
.. SFE	..	..	6 1 55.000	..	..	76.00	752.1228	0.554	1.252
.. SP2	..	..	6 1 55.000	..	..	-	715.6757	0.652	0.608
1327 .. SPN	..	..	6 1 55.000	-0.3016	..	-14.00	689.6237	0.838	1.063
.. SFE	..	..	6 1 55.000	..	..	76.00	763.6658	1.032	1.294
.. SP2	..	..	6 1 55.000	..	..	-	718.0589	1.003	1.236

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Correction		Seismometer	Orientation	Sensitivity	Period	Damping	Ratio	Distance	Azimuth	Back Azimuth
				d	h	m	s	(sec)	(sec)	(deg)	(deg)	(km)	(deg)	(deg)
1328 3-16 SPN	30 SEP 1988	274	6 1 55.000	-0.0316	WWVB	-14.00	505.6474	0.002	1.454	80.2	105.5	286.1	..	..
.. SPE	..	..	6 1 55.000	..	..	76.00	694.0557	0.551	0.681	..	..	..	..	..
.. SP2	..	..	6 1 55.000	..	..	-	624.0828	0.864	1.000	..	..	..	..	..
1331 .. SPN	..	..	6 1 55.000	-0.1916	..	-14.00	622.2807	0.878	1.277	69.2	105.1	285.7	..	..
.. SPE	..	..	6 1 55.000	..	..	76.00	696.1515	1.041	1.315	..	..	..	..	..
.. SP2	..	..	6 1 55.000	..	..	-	835.2012	0.680	0.900	..	..	..	..	..
1302 3-18 SPZ	..	..	4 2 10.000	0.1187	..	-14.00	98.2104	0.465	0.389	256.3	95.4	277.6	..	..
.. SPN	..	..	4 2 10.000	..	..	76.00	104.5629	0.509	0.411	..	..	..	..	..
.. SPE	..	..	4 2 10.000	..	..	-	101.6230	0.516	0.438	..	..	..	..	..
1303 .. SPZ	..	..	4 2 10.000	0.1087	..	-14.00	99.4546	0.461	0.444	252.2	95.6	277.8	..	..
.. SPN	..	..	4 2 10.000	..	..	76.00	111.6448	0.478	0.491	..	..	..	..	..
.. SPE	..	..	4 2 10.000	..	..	-	99.4548	0.480	0.443	..	..	..	..	..
1304 .. SPZ	..	..	4 2 10.000	0.1187	..	-14.00	112.4042	0.458	0.468	249.5	86.0	278.2	..	..
.. SPN	..	..	4 2 10.000	..	..	76.00	112.0597	0.493	0.508	..	..	..	..	..
.. SPE	..	..	4 2 10.000	..	..	-	114.3942	0.510	0.538	..	..	..	..	..
1305 .. SPZ	..	..	4 2 10.000	0.0387	..	-14.00	76.00	114.3942	0.510	0.538	..	..	..	..
.. SPN	..	..	4 2 10.000	..	..	76.00	121.3985	0.427	0.361	247.0	86.9	272.0	..	..
.. SPE	..	..	4 2 10.000	..	..	-	115.4130	0.506	0.447	..	..	..	..	..
1306 .. SPZ	..	..	4 2 10.000	0.0186	..	-14.00	118.3055	0.480	0.429	..	..	..	..	..
.. SPN	..	..	4 2 10.000	..	..	76.00	92.7538	0.415	0.356	242.8	88.0	280.1	..	..
.. SPE	..	..	4 2 10.000	..	..	-	114.00	85.1735	0.526	0.440	..	..	..	..
1307 .. SPZ	..	..	4 2 10.000	..	..	76.00	90.0845	0.488	0.382	..	..	..	..	..
.. SPN	..	..	4 2 10.000	0.0000	..	-	108.2437	0.422	0.357	238.8	88.2	280.2	..	..
.. SPE	..	..	4 2 10.000	..	..	-14.00	112.1432	0.507	0.423	..	..	..	..	..
1308 .. SPZ	..	..	4 2 10.000	..	..	76.00	106.2984	0.511	0.436	..	..	..	..	..
.. SPN	..	..	4 2 10.000	-0.1514	..	-	105.7755	0.412	0.329	235.5	88.3	280.3	..	..
.. SPE	..	..	4 2 10.000	..	..	76.00	22.8554	0.535	0.470	..	..	..	..	..
1309 .. SPZ	..	..	4 2 10.000	..	..	-14.00	76.00	108.5663	0.535	0.450	..	..	..	..
.. SPN	..	..	4 2 10.000	-0.1614	..	-14.00	108.5807	0.468	0.386	233.4	88.5	280.5	..	..
.. SPE	..	..	4 2 10.000	..	..	76.00	118.1822	0.465	0.419	..	..	..	..	..
1310 .. SPZ	..	..	4 2 10.000	..	..	-	108.7043	0.447	0.382	..	..	..	..	..
.. SPN	..	..	4 2 10.000	-0.0814	..	-14.00	22.8554	0.535	0.470	..	..	..	..	..
.. SPE	..	..	4 2 10.000	..	..	76.00	108.5663	0.535	0.450	..	..	..	..	..
1311 .. SPZ	..	..	4 2 10.000	-0.2214	..	-14.00	108.5807	0.468	0.386	233.4	88.5	280.5	..	..
.. SPN	..	..	4 2 10.000	..	..	76.00	118.1822	0.465	0.419	..	..	..	..	..
.. SPE	..	..	4 2 10.000	..	..	-	108.7043	0.447	0.382	..	..	..	..	..
1312 .. SPZ	..	..	4 2 10.000	..	..	76.00	108.5807	0.468	0.386	233.4	88.5	280.5	..	..
.. SPN	..	..	4 2 10.000	-0.1614	..	-14.00	108.5807	0.468	0.386	233.4	88.5	280.5	..	..
.. SPE	..	..	4 2 10.000	..	..	76.00	118.1822	0.465	0.419	..	..	..	..	..
1313 .. SPZ	..	..	4 2 10.000	..	..	-	108.8102	0.405	0.335	228.8	88.7	280.6	..	..
.. SPN	..	..	4 2 10.000	0.1486	..	-14.00	109.9148	0.501	0.416	..	..	..	..	..
.. SPE	..	..	4 2 10.000	..	..	76.00	106.6236	0.502	0.440	..	..	..	..	..
1314 .. SPZ	..	..	4 2 10.000	-0.2214	..	-	108.5807	0.468	0.386	233.4	88.5	280.5	..	..
.. SPN	..	..	4 2 10.000	..	..	-14.00	107.2889	0.429	0.437	..	..	..	..	..
.. SPE	..	..	4 2 10.000	..	..	76.00	93.8411	0.489	0.426	..	..	..	..	..
1315 .. SPZ	..	..	4 2 10.000	..	..	-	121.0679	0.441	0.373	221.6	89.2	281.1	..	..
.. SPN	..	..	4 2 10.000	..	..	-14.00	98.8521	0.506	0.382	..	..	..	..	..
.. SPE	..	..	4 2 10.000	..	..	76.00	110.1773	0.555	0.459	..	..	..	..	..
1316 .. SPZ	..	..	4 2 10.000	0.0000	NONE	-14.00	113.1030	0.493	0.479	215.5	89.5	281.3	..	..
.. SPN	..	..	4 2 10.000	..	..	76.00	76.00	0.357	0.426	..	..	..	..	..
.. SPE	..	..	4 2 10.000	..	..	-	101.4580	0.292	0.338	..	..	..	..	..
1317 .. SPZ	..	..	4 2 10.000	0.0861	GOES	-14.00	119.6034	0.426	0.393	209.0	89.2	281.0	..	..
.. SPN	..	..	4 2 10.000	..	..	76.00	106.0838	0.472	0.416	..	..	..	..	..
.. SFZ	..	..	4 2 10.000	..	..	-	118.8165	0.494	0.429	..	..	..	..	..

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Correction		Seismometer Orientation (deg)	Seismometer Sensitivity (volts/m.sec)	Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
				h	m	s	(sec)					
1323 3-18	SPN	30 SEP 1988	274	4	2	10	000	-1.1015	WWVB	-14.00	87.4227	0.511
..	SPE	-	-	4	2	10	000	..	..	76.00	88.3818	0.468
..	SPZ	-	-	4	2	10	000	..	..	-	98.3327	0.422
1324	SPN	-	-	4	2	10	000	0.0884	..	-14.00	145.0600	0.540
..	SIE	-	-	4	2	10	000	..	..	76.00	148.5800	0.540
..	SPZ	-	-	4	2	10	000	..	..	-	135.9895	0.580
1325	SPN	-	-	4	2	10	000	0.0000	..	-14.00	105.7116	0.515
..	SPE	-	-	4	2	10	000	..	..	76.00	118.0167	0.472
..	SPZ	-	-	4	2	10	000	..	..	-	111.0266	0.385
1326	SPN	-	-	4	2	10	000	-0.1516	..	-14.00	786.2735	0.610
..	SPE	-	-	4	2	10	000	..	..	76.00	752.1228	0.554
..	SPZ	-	-	4	2	10	000	..	..	-	715.6757	0.652
1328	SPN	-	-	4	2	10	000	-0.0216	..	-14.00	505.6474	0.802
..	SPE	-	-	4	2	10	000	..	..	76.00	694.0557	0.551
..	SPZ	-	-	4	2	10	000	..	..	-	624.0828	0.864
1301 3-19	SPZ	-	-	6	0	15	000	-0.4113	..	-	113.0880	1.000
..	SIN	-	-	6	0	15	000	..	..	-14.00	0.494	0.465
..	SPE	-	-	6	0	15	000	..	..	76.00	115.7602	0.480
1302	SPZ	-	-	6	0	15	000	0.1187	..	-	98.2104	0.465
..	SPN	-	-	6	0	15	000	..	..	-14.00	104.5629	0.508
..	SPE	-	-	6	0	15	000	..	..	76.00	101.6230	0.516
1303	SPZ	-	-	6	0	15	000	0.1387	..	-	99.4546	0.481
..	SPN	-	-	6	0	15	000	..	..	-14.00	111.6448	0.478
..	SPE	-	-	6	0	15	000	..	..	76.00	89.4548	0.480
1304	SPZ	-	-	6	0	15	000	0.1387	..	-	112.4042	0.459
..	SPN	-	-	6	0	15	000	..	..	-14.00	112.0597	0.493
..	SPE	-	-	6	0	15	000	..	..	76.00	114.3942	0.510
1305	SPZ	-	-	6	0	15	000	0.0587	..	-	121.3885	0.427
..	SPN	-	-	6	0	15	000	..	..	-14.00	115.4130	0.506
..	SPE	-	-	6	0	15	000	..	..	76.00	118.3055	0.490
1306	SPZ	-	-	6	0	15	000	0.0186	..	-	92.7538	0.415
..	SPN	-	-	6	0	15	000	..	..	-14.00	85.1735	0.526
..	SPE	-	-	6	0	15	000	..	..	76.00	106.2984	0.511
1308	SPZ	-	-	6	0	15	000	-0.1611	..	-	108.2437	0.422
..	SPN	-	-	6	0	15	000	..	..	76.00	90.0845	0.488
..	SPE	-	-	6	0	15	000	..	..	-	109.2437	0.422
1307	SPZ	-	-	6	0	15	000	0.0000	..	-14.00	112.1432	0.507
..	SPN	-	-	6	0	15	000	..	..	76.00	108.3807	0.468
..	SPE	-	-	6	0	15	000	..	..	-	118.1922	0.465
1310	SPZ	-	-	6	0	15	000	-0.0514	..	-	108.7045	0.447
..	SPN	-	-	6	0	15	000	..	..	-14.00	108.8102	0.405
..	SPE	-	-	6	0	15	000	..	..	-	108.8149	0.501
..	SPE	-	-	6	0	15	000	..	..	76.00	106.6236	0.502

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Time		Seismometer	Pendulum	Damping	Back
				Correction	Orientation				
				(sec)	(deg)	Sensitivity	Period	(deg)	(deg)
						(volts/m/sec)	(sec)	(deg)	(deg)
1311	3-19	SP2	30 SEP 1968	274	6 0 15.000	-0.9614	WWVB	-14.00	118.7059
		SPN	-	-	6 0 15.000	-	-	-	0.378
		SPE	-	-	6 0 15.000	-	-	-	0.336
1312	-	SP2	-	-	6 0 15.000	-0.2382	-	76.00	111.1007
		SPN	-	-	6 0 15.000	-	-	-	0.424
		SPE	-	-	6 0 15.000	-	-	-	0.410
1313	-	SP2	-	-	6 0 15.000	0.1689	-	-	0.422
		SPN	-	-	6 0 15.000	-	-	-	0.324
		SPE	-	-	6 0 15.000	-	-	-	0.437
1315	-	SPN	-	-	6 0 15.000	0.0000	NONE	-14.00	107.2989
		SPE	-	-	6 0 15.000	-	-	-	0.499
1316	-	SP2	-	-	6 0 15.000	0.1689	-	76.00	93.8411
		SPN	-	-	6 0 15.000	-	-	-	0.489
		SPE	-	-	6 0 15.000	-	-	-	0.426
1317	-	SP2	-	-	6 0 15.000	-0.0165	WWVB	-14.00	121.0679
		SPN	-	-	6 0 30.000	-	-	-	0.441
		SPE	-	-	6 0 30.000	-	-	-	0.373
1323	-	SP2	-	-	6 0 30.000	-	-	-	0.506
		SPN	-	-	6 0 30.000	-	-	-	0.382
		SPE	-	-	6 0 30.000	-	-	-	0.459
1326	-	SP2	-	-	6 0 15.000	0.0831	GOES	-14.00	110.1773
		SPN	-	-	6 0 15.000	-	-	-	0.555
		SPE	-	-	6 0 15.000	-	-	-	0.479
1327	-	SP2	-	-	6 0 15.000	-1.3457	WWVB	-14.00	113.1000
		SPN	-	-	6 0 15.000	-	-	-	0.493
		SPE	-	-	6 0 15.000	-	-	-	0.479
1328	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	102.2861
		SPN	-	-	6 0 15.000	-	-	-	0.487
		SPE	-	-	6 0 15.000	-	-	-	0.397
1331	-	SP2	-	-	6 0 15.000	-0.0316	-	-	117.5008
		SPN	-	-	6 0 15.000	-	-	-	0.502
		SPE	-	-	6 0 15.000	-	-	-	0.405
1332	-	SP2	-	-	6 0 15.000	-0.3016	-	76.00	102.1071
		SPN	-	-	6 0 15.000	-	-	-	0.408
		SPE	-	-	6 0 15.000	-	-	-	0.346
1333	-	SP2	-	-	6 0 15.000	-0.1284	-	76.00	118.6034
		SPN	-	-	6 0 15.000	-	-	-	0.426
		SPE	-	-	6 0 15.000	-	-	-	0.393
1334	-	SP2	-	-	6 0 15.000	-0.1284	-	76.00	106.0836
		SPN	-	-	6 0 15.000	-	-	-	0.472
		SPE	-	-	6 0 15.000	-	-	-	0.416
1335	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	118.8165
		SPN	-	-	6 0 15.000	-	-	-	0.494
		SPE	-	-	6 0 15.000	-	-	-	0.429
1336	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	97.4227
		SPN	-	-	6 0 15.000	-	-	-	0.511
		SPE	-	-	6 0 15.000	-	-	-	0.424
1337	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	86.3918
		SPN	-	-	6 0 15.000	-	-	-	0.488
		SPE	-	-	6 0 15.000	-	-	-	0.372
1338	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	98.3327
		SPN	-	-	6 0 15.000	-	-	-	0.422
		SPE	-	-	6 0 15.000	-	-	-	0.345
1339	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1340	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	135.8985
		SPN	-	-	6 0 15.000	-	-	-	0.580
		SPE	-	-	6 0 15.000	-	-	-	0.430
1341	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	98.3327
		SPN	-	-	6 0 15.000	-	-	-	0.422
		SPE	-	-	6 0 15.000	-	-	-	0.345
1342	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1343	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1344	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1345	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1346	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1347	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1348	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1349	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1350	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1351	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1352	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1353	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1354	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1355	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1356	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1357	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1358	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1359	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1360	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1361	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1362	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1363	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1364	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1365	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1366	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.000	-	-	-	0.540
		SPE	-	-	6 0 15.000	-	-	-	0.400
1367	-	SP2	-	-	6 0 15.000	-0.1716	-	76.00	145.0600
		SPN	-	-	6 0 15.00				

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Seismometer		Pendulum	Damping	Azimuth	Azimuth
				Correction	Orientation				
		d	h m	s	(sec)	(volts/m/sec)	(sec)	(km)	(deg)
1304 3-20 SPZ	30 SEP 1988	274	4	20.000	0.1187 WWVB	-	0.468	326.1	97.5
1304 3-20 SPN	-	-	4	20.000	-	-14.00	0.459	320.3	280.3
1304 3-20 SPE	-	-	4	20.000	-	76.00	0.493	-	-
1305 3-20 SPZ	-	-	4	20.000	0.0387	-	0.508	-	-
1305 3-20 SPN	-	-	4	20.000	-	-14.00	0.510	281.0	281.0
1305 3-20 SPE	-	-	4	20.000	-	115.4130	0.538	-	-
1306 3-20 SPZ	-	-	4	20.000	0.0086	-	0.427	323.8	-
1306 3-20 SPN	-	-	4	20.000	-	76.00	0.506	-	-
1306 3-20 SPE	-	-	4	20.000	-	-14.00	0.415	-	-
1307 3-20 SPZ	-	-	4	20.000	-	-	0.429	-	-
1307 3-20 SPN	-	-	4	20.000	0.0000	-	0.415	319.8	281.8
1307 3-20 SPE	-	-	4	20.000	-	-14.00	0.415	-	-
1308 3-20 SPZ	-	-	4	20.000	-	76.00	0.490	-	-
1308 3-20 SPN	-	-	4	20.000	-	-14.00	0.415	-	-
1308 3-20 SPE	-	-	4	20.000	-	76.00	0.440	-	-
1309 3-20 SPZ	-	-	4	20.000	-	-	0.488	-	-
1309 3-20 SPN	-	-	4	20.000	0.0000	-	0.485	-	-
1309 3-20 SPE	-	-	4	20.000	-	-14.00	0.422	315.8	281.8
1310 3-20 SPZ	-	-	4	20.000	-	109.2437	0.422	-	-
1310 3-20 SPN	-	-	4	20.000	-	112.1432	0.507	-	-
1310 3-20 SPE	-	-	4	20.000	-	76.00	0.511	-	-
1311 3-20 SPZ	-	-	4	20.000	-	-	0.436	-	-
1311 3-20 SPN	-	-	4	20.000	-	-105.7755	0.412	-	-
1311 3-20 SPE	-	-	4	20.000	-	105.7755	0.329	312.5	281.9
1312 3-20 SPZ	-	-	4	20.000	-	-14.00	0.526	-	-
1312 3-20 SPN	-	-	4	20.000	-	76.00	0.535	-	-
1312 3-20 SPE	-	-	4	20.000	-	-14.00	0.470	-	-
1313 3-20 SPZ	-	-	4	20.000	-	76.00	0.535	-	-
1313 3-20 SPN	-	-	4	20.000	-	-14.00	0.450	-	-
1313 3-20 SPE	-	-	4	20.000	-	76.00	0.486	310.4	282.1
1314 3-20 SPZ	-	-	4	20.000	-	-	0.468	-	-
1314 3-20 SPN	-	-	4	20.000	-	76.00	0.465	-	-
1314 3-20 SPE	-	-	4	20.000	-	-	0.447	-	-
1315 3-20 SPZ	-	-	4	20.000	-	-109.7043	0.382	-	-
1315 3-20 SPN	-	-	4	20.000	-	108.6102	0.405	306.9	282.2
1315 3-20 SPE	-	-	4	20.000	-	-14.00	0.335	-	-
1316 3-20 SPZ	-	-	4	20.000	-	76.00	0.501	-	-
1316 3-20 SPN	-	-	4	20.000	-	-14.00	0.501	-	-
1316 3-20 SPE	-	-	4	20.000	-	76.00	0.502	-	-
1317 3-20 SPZ	-	-	4	20.000	-	-	0.440	-	-
1317 3-20 SPN	-	-	4	20.000	-	-14.00	0.324	301.8	282.6
1317 3-20 SPE	-	-	4	20.000	-	76.00	0.422	-	-
1318 3-20 SPZ	-	-	4	20.000	-	-14.00	0.498	-	-
1318 3-20 SPN	-	-	4	20.000	-	76.00	0.437	-	-
1318 3-20 SPE	-	-	4	20.000	-	-14.00	0.426	-	-
1319 3-20 SPZ	-	-	4	20.000	-	76.00	0.489	-	-
1319 3-20 SPN	-	-	4	20.000	-	-14.00	0.426	-	-
1319 3-20 SPE	-	-	4	20.000	-	76.00	0.426	-	-
1320 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	298.7	282.6
1320 3-20 SPN	-	-	4	20.000	-	121.0678	0.441	-	-
1320 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	-	-
1321 3-20 SPZ	-	-	4	20.000	-	76.00	0.506	-	-
1321 3-20 SPN	-	-	4	20.000	-	-14.00	0.498	-	-
1321 3-20 SPE	-	-	4	20.000	-	76.00	0.437	-	-
1322 3-20 SPZ	-	-	4	20.000	-	-14.00	0.426	-	-
1322 3-20 SPN	-	-	4	20.000	-	76.00	0.426	-	-
1322 3-20 SPE	-	-	4	20.000	-	-14.00	0.426	-	-
1323 3-20 SPZ	-	-	4	20.000	-	76.00	0.426	-	-
1323 3-20 SPN	-	-	4	20.000	-	-14.00	0.427	282.6	282.8
1323 3-20 SPE	-	-	4	20.000	-	76.00	0.427	-	-
1324 3-20 SPZ	-	-	4	20.000	0.0681 GOES	-	0.392	0.338	282.6
1324 3-20 SPN	-	-	4	20.000	-	118.6034	0.426	0.393	282.6
1324 3-20 SPE	-	-	4	20.000	-	76.00	0.426	0.345	-
1325 3-20 SPZ	-	-	4	20.000	-	-	0.472	0.416	-
1325 3-20 SPN	-	-	4	20.000	-	-14.00	0.484	0.459	263.7
1325 3-20 SPE	-	-	4	20.000	-	118.8165	0.429	0.400	283.1
1326 3-20 SPZ	-	-	4	20.000	-	-14.00	0.511	0.424	268.2
1326 3-20 SPN	-	-	4	20.000	-	101.4227	0.424	0.400	282.6
1326 3-20 SPE	-	-	4	20.000	-	101.4580	0.392	0.388	-
1327 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.373	-
1327 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.393	-
1327 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.382	-
1328 3-20 SPZ	-	-	4	20.000	-	76.00	0.506	0.458	-
1328 3-20 SPN	-	-	4	20.000	-	-14.00	0.493	0.479	-
1328 3-20 SPE	-	-	4	20.000	-	76.00	0.437	0.437	-
1329 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1329 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1329 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1330 3-20 SPZ	-	-	4	20.000	-	76.00	0.441	0.441	-
1330 3-20 SPN	-	-	4	20.000	-	-14.00	0.441	0.441	-
1330 3-20 SPE	-	-	4	20.000	-	76.00	0.441	0.441	-
1331 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1331 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1331 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1332 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1332 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1332 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1333 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1333 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1333 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1334 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1334 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1334 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1335 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1335 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1335 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1336 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1336 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1336 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1337 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1337 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1337 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1338 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1338 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1338 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1339 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1339 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1339 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1340 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1340 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1340 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1341 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1341 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1341 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1342 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1342 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1342 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1343 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1343 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1343 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1344 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1344 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1344 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1345 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1345 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1345 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1346 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1346 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1346 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1347 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1347 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1347 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1348 3-20 SPZ	-	-	4	20.000	-	-14.00	0.441	0.441	-
1348 3-20 SPN	-	-	4	20.000	-	118.8165	0.441	0.441	-
1348 3-20 SPE	-	-	4	20.000	-	-14.00	0.441	0.441	-
1349 3-20 SPZ	-</td								

Seismometer orientation is measured as degrees clockwise from geographic north

Table 3c. (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Seismometer	Pendulum	Damping	Distance	Azimuth	Back
		d h m	s	(sec)	Orientation	Sensitivity	Period	Ratio	(km)	(deg)	Azimuth (deg)
1328	3-20 SPN	30 SEP 1988	274	4 0 20.000	-0.0316 WWVB	-14.00	505.6474	0.902	1.454	251.6	89.8
..	.. SPE	.. ..	..	4 0 20.000	..	76.00	694.0557	0.551	0.681	..	..
..	.. SPZ	.. ..	..	4 0 20.000	..	-	624.0828	0.864	1.000	..	..

Seismometer orientation is measured as degrees clockwise from geographic north

Table 4

Typical direct access SEGY-LDS version 2.0 Reel Header Block information from NYNEX2-07.SGY data file and Trace Header Block information for seismogram station 1211, component SPN. There are five modifications to the SEGY-LDS v 2.0 format given in Spencer et al,(1989) to accommodate AFGL three component data.

1. TSNL is re-defined as 1,2,3,4 or 5, for the Z,N,E, Radial or Tangential components, respectively.
2. DELR is re-defined as the sensor serial number.
3. DELS is re-defined as the sensor senivitity in volts/meter/second. Divide DELS by 10000.0 for actual value. (This value was scaled to an I\*4 location)
4. WDS is re-defined as pendulum period in milli seconds.
5. WDR is re-defined as pendulum damping, divide WDR by 1000 for actual value.

Binary Reel Id Header Block

```
-----
jobid:          0
lineno:         0
reelno:         0
ntrace:         0
nauxt:          0
sint:           10000
sint2:          10000
nsam:           8001
nsamf:          0
icode:          2
ncdp:           0
itsort:         0
vcode:          0
ssweep:         0
esweep:         0
sleng:          0
stype:          0
nts:            0
stts:           0
stte:           0
ttype:          0
cort:           0
bgr:            0
arm:            0
isys:           1
ipol:           1
vpc:            0
notif:          78
attri:          0
meanas:         0.0000000E+00
domain:         0
vred:           0
minass:         0.0000000E+00
```

```
maxass: 0.0000000E+00
iinstr: 11
cryear: 1989
crmnth: 12
crday: 18
padtyp: 0
ccode: 2
nnb: 0
bord: 0
fvn: 200
-----
```

```
Trace Id Header Block for trace # 1
-----
```

```
tsnl: 2
tsnt: 1
ofrn: 20
tnofr: 0
espn: 7
cdp: 0
tncdp: 0
tic: 1
nvs: 0
nhs: 0
duse: 0
idist: 92102
irel: 38
ishe: 460
ishd: 0
delr: 9261
dels: 1131000
wds: 2209
wdr: 475
smull: 1
smul2: -100
ishlo: -26005141
ishla: 15904260
irlo: -26413344
irla: 15853861
cunits: 2
wvel: 0
swvel: 0
utimes: 0
utimeg: 0
sstati: 0
gstati: 0
tstati: 0
istime: 0
ibtime: 0
ictime: 0
mtimes: 0
mtimee: 0
length: 8001
isi: 10000
```

gaint: 3  
gc: 10  
gidb: 0  
tcorr: 0  
tsswee: 0  
teswee: 0  
tsleng: 0  
tstype: 5  
tstts: 0  
tstte: 0  
tttype: 0  
aif: 30  
ais: 0  
nif: 0  
nis: 0  
flc: 0  
fhc: 0  
slc: 0  
shc: 0  
tyear: 1988  
tday: 268  
thour: 5  
tmin: 59  
tsec: 55  
tbcode: 2  
twf: 0  
ggrpl: 0  
ggtp: 0  
errlt: 0  
daca: 0  
edc: 0  
mst: 0  
cor: -104  
charge: 1224  
syear: 1988  
sday: 268  
shour: 6  
smin: 0  
sseco: 0  
ssmic: 9000  
azimut: 15640  
geoazi: 0  
geover: -900  
ttrace: 0  
scrs: 319  
deploy: DEP2  
spname: 0007  
rstnam: 1211  
shotid: 0020  
lineid:  
geocr: SPN

-----

## APPENDIX

### Boston College - MIT Piggy-Back Seismic Refraction Experiment

by

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#### Contents

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#### A-1. EXPERIMENTAL CONFIGURATION

In a cooperative effort, Boston College and MIT (BC-MIT) conducted a piggyback experiment as part of the 1988 Ontario - New York - New England Seismic Refraction Experiment. John E. Ebel of Weston Observatory of Boston College coordinated experiment, and Robert Cicerone and Charles Doll supervised the MIT participation. A total of nine seismic instruments were available for the BC-MIT deployment. Five were portable Sprengnether MEQ-800 analog seismographs which were connected to vertical component, 1-sec period HS-10 seismometers. The other four instruments were Sprengnether DR-200 portable digital seismographs which were connected to three-component Sprengnether S-6000 seismometers. Because of this limited number of instruments available to the

BC-MIT group, it was decided to use the instruments to augment the recording along a cross line between shot points 10 and 22 which was instrumented by the Geophysics Laboratory (GL). On the first night of shooting the BC-MIT seismographs were deployed to the northwest of shotpoint 10, while on the second and third nights of shooting the BC-MIT group deployed just northwest and southeast of shotpoint 22. The primary effect of the BC-MIT recording effort was to extend the refraction profile northwest from shotpoint 22 and southeast from shotpoint 10 to distances of about 200 km from the shotpoints, as well as to record at distances within 40 km of shotpoint 22 in southern New Hampshire.

## A-2. DIGITAL DATA RECOVERY

Instrument failures limited the recovery of useable data from the digital instruments. Most of those failures occurred during read, write or rewind operations of the cassette tape drives, which were apparently affected by low nighttime temperatures (in the thirties and forties Fahrenheit), high humidity (dew formed on the instruments all three nights) or insufficient battery voltages for the operating conditions. At least some seismograms were obtained from all four digital instruments on the first night of shooting, while on the second and third nights of shooting each only two of the instruments remained operational. Unfortunately, some of the digital waveforms recorded had the signals buried by noise or were otherwise unuseable due to instrument malfunctions.

All of the DR-200 instruments were operated with common settings: digitization rate - 100 Hz; no high pass filter; low pass filter corner frequency at 25 Hz; gain amplifiers set at X1000; ADC set at auto, and all data were recorded continuously in each shot window. Channels 1, 2 and 3 recorded the vertical, north-south and east-west ground motion, respectively, with up, north and east ground motions being positive in the waveforms. The north-south geophone was generally aligned with magnetic north except for station 1209 which was aligned to geographic north.

One problem evident on the digital seismic traces are regular noise bursts with intervals of about 2.5 sec and 4.5 sec. These are from vibrations generated by the recording unit as the tape drive head engaged and disengaged during recording. The seismometers cables were only about 8 feet long, and this distance was obviously insufficient to permit the attenuation of this source of noise in the recording unit. We have not corrected the raw traces for these noise bursts,

although it should be a straightforward procedure to estimate their shapes from the portions of the traces before the arrivals from the shots and then subtract the shapes from the records.

Accurate absolute time calibrations were achieved by synchronizing the instruments clocks to absolute time standards within hours of their deployment. On the first night of shooting, all of the instrument clocks were set to WWV time about 3 hours before the first shot window. On the second and third nights of shooting, the instruments clocks were set to GOES satellite time about 10 hours before the first shot window. In a few cases the clocks were checked after the recordings to ascertain the clock drift, which almost invariably proved to be minimal. In other cases post experiment clock corrections were not determined, and the initial clock setting was assumed to be accurate throughout the experiment. In one case (station 1207 on the first shot night) the clock was turned off and restarted at an arbitrary time just before the first shot. This clock was calibrated to absolute time after the last shot window and was assumed to have not drifted throughout the duration of the night of shooting. Clock corrections are summarized in Table A1.

### A-3. ANALOG DATA RECOVERY

The data recovery rate for the analog MEQ-800 recorders varied with the night of shooting. On the first night of the experiment, records were recovered from all five instruments, while three useful records were recovered from the second night of shooting and two good records were taken during the third night. A seismometer which was removed from one site and operator error lost two records during the second night of the experiment. Some of the records on the third night were affected by low instrument voltages in near-freezing temperature conditions. About of 90 P-wave arrival times could be read with some accuracy from the records. They are summarized in Table A3.

Time calibrations on the analog records were established in the same way as described above for the digital data. Four of the recorders were set to run at 240 mm/min, while the fifth was operated at 120 mm/min. Instrument settings for such parameters as high and low cut filters, gain and maximum pen deflection were set by the individual operators.

The digital data are presented in trace-normalized record sections format in Figures A1-A6. No instrument corrections have been applied and the clock

corrections are assumed to be zero. Table A2 lists station and seismogram information for all records that could be recovered from the field cassette tapes.

#### **A-4. ACKNOWLEDGMENTS**

Special thanks go to the Boston College and MIT students who assisted with the data acquisition. These include Bill Dupree, Chris Kulig, Andrea Steckerl, Sue D'Annolfo, Zhi-ping Tu, Xiao-min Zhao, Richard Spielman from Boston College and Debbie Cicerone. Several MIT undergraduates also participated. The Boston College field effort was supported by a grant from the Mobil Oil Foundation, and their support is gratefully appreciated.

Table A1. Time Corrections for DR-200 Data

<u>Station</u>	DR-200 <u>Unit #</u>	Time <u>Correction*</u>	<u>Remarks</u>
September 17, 1988			
1201	173	0.00	Time set to absolute time 3 hours before first shot window.
1203	210	0.00	Time set to absolute time 3 hours before first shot window.
1207	178	+04:33:18.77	Clock was restarted from 00:00:00.00 before first shot window. 04:58:41.23 on record was found to correspond to 09:32:00.00 absolute time after last shot window.
1209	141	0.00	Time set to absolute time 3 hours before first shot window.
September 24, 1988			
1243	178	0.00	Clock set to absolute time 10 hours before first shot window.
1244	210	0.00	Clock set to absolute time 10 hours before first shot window.
September 30, 1988			
1246	173	+0.02	Clock setting was slow compared to absolute time 10 hours before first shot window.
1252	210	0.00	Clock set to absolute time 10 hours before first shot window.

\*Clock corrections to be added to time on records to calibrate waveforms to absolute time.

Note: All geophones were oriented to magnetic north except station 1209 (first shot night).

Table A2. Boston College MIT Station and Seismometer Constants

Seismogram	Date	Starting Time	Time	Time		Seismometer	Seismometer	Pendulum	Damping	Back	
				Correction	Orientation						
				(sec)	(deg)	Sensitivity	Period	(sec)	Ratio	Distance	Azimuth
						(volts m sec)	(sec)	(sec)		(km)	(deg)
1201	1-02	SPZ	17 SEP 1988	261	4	0	0.000	0.0000	0.500	0.400	297.7
	"	SPN	"	"	4	0	0.000	0.0000	0.500	0.400	"
	"	SPE	"	"	4	0	0.000	0.0000	0.500	0.400	"
"	1-05	SPZ	"	"	4	2	0.000	0.0000	0.500	0.400	191.1
"	"	SPN	"	"	4	2	0.000	0.0000	0.500	0.400	"
"	"	SPE	"	"	4	2	0.000	0.0000	0.500	0.400	"
"	1-07	SPZ	"	"	4	4	0.000	0.0000	0.500	0.400	125.7
"	"	SPN	"	"	4	4	0.000	0.0000	0.500	0.400	"
"	"	SPE	"	"	4	4	0.000	0.0000	0.500	0.400	"
"	1-22	SPZ	"	"	4	6	0.000	0.0000	0.500	0.400	201.6
"	"	SPN	"	"	4	6	0.000	0.0000	0.500	0.400	"
"	"	SPE	"	"	4	6	0.000	0.0000	0.500	0.400	"
"	1-14	SPZ	"	"	4	8	0.000	0.0000	0.500	0.400	72.0
"	"	SPN	"	"	4	8	0.000	0.0000	0.500	0.400	"
"	"	SPE	"	"	4	8	0.000	0.0000	0.500	0.400	"
1203	"	SPZ	"	"	4	8	9.700	0.0000	0.500	0.400	70.6
"	"	SPN	"	"	4	8	9.700	0.0000	0.500	0.400	"
"	"	SPE	"	"	4	8	9.700	0.0000	0.500	0.400	"
"	1209	1-02	SPZ	"	3	38	4.300	0.0000	0.500	0.400	276.1
"	"	SPN	"	"	3	38	4.300	0.0000	0.500	0.400	"
"	"	SPE	"	"	3	38	4.300	0.0000	0.500	0.400	"
"	1201	1-04	SPZ	"	6	1	57.000	0.0000	0.500	0.400	23.7
"	"	SPN	"	"	6	1	57.000	0.0000	0.500	0.400	"
"	"	SPE	"	"	6	1	57.000	0.0000	0.500	0.400	"
"	"	1-01	SPZ	"	6	4	0.000	0.0000	0.500	0.400	321.5
"	"	SPN	"	"	6	4	0.000	0.0000	0.500	0.400	"
"	"	SPE	"	"	6	4	0.000	0.0000	0.500	0.400	"
"	1-05	SPZ	"	"	8	0	0.000	0.0000	0.500	0.400	259.5
"	"	SPN	"	"	8	0	0.000	0.0000	0.500	0.400	"
"	"	SPE	"	"	8	0	0.000	0.0000	0.500	0.400	"
"	1-23	SPZ	"	"	8	2	0.000	0.0000	0.500	0.400	271.1
"	"	SPN	"	"	8	2	0.000	0.0000	0.500	0.400	"
"	"	SPE	"	"	8	2	0.000	0.0000	0.500	0.400	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table A2. (continued)

Seismogram	Date	Starting Time	Time	Correction	Seismometer	Pendulum	Damping	Back
		dd h m	sec	(deg)	Sensitivity	Period	Ratio	Azimuth
					(volts m sec)	(sec)		(deg)
1201 1-10	SP2	17 SEP 1988	261	8 4	0.000	0.0000	-	100.0000
"	SPN	"	"	8 4	0.000	0.00	0.400	49.8
"	SPE	"	"	8 4	0.000	90.00	0.400	"
"	1-02	SP2	"	8 7 55.000	0.0000	-	0.400	297.7
"	SPN	"	"	8 7 55.000	0.00	100.0000	0.500	85.2
"	SPE	"	"	8 7 55.000	0.00	100.0000	0.500	"
1203 1-10	SP2	"	"	8 4 3.800	0.0000	-	0.400	39.7
"	SPN	"	"	8 4 3.800	0.00	100.0000	0.500	312.5
"	SPE	"	"	8 4 3.800	0.00	100.0000	0.500	"
1207 1-03	SP2	"	"	8 0 20.770	0.0000	-	0.400	238.5
"	SPN	"	"	8 0 20.770	0.00	100.0000	0.500	264.0
"	SPE	"	"	8 0 20.770	0.00	100.0000	0.500	"
"	1-23	SP2	"	8 2 20.770	0.0000	-	0.400	241.5
"	SPN	"	"	8 2 20.770	0.00	100.0000	0.500	109.2
"	SPE	"	"	8 2 20.770	0.00	100.0000	0.500	"
"	1-10	SP2	"	8 3 5.0 770	0.0000	-	0.400	332.5
"	SPN	"	"	8 3 5.0 770	0.00	100.0000	0.500	152.4
"	SPE	"	"	8 3 5.0 770	0.00	100.0000	0.500	"
1243 2-08	SP2	24 SEP 1988	268	4 0	0.000	0.0000	-	100.0000
"	SPN	"	"	4 0	0.000	0.00	0.400	102.8
"	SPE	"	"	4 0	0.000	90.00	0.400	"
"	2-09	SP2	"	4 2 0.000	0.0000	-	0.400	172.4
"	SPN	"	"	4 2 0.000	0.00	100.0000	0.500	112.9
"	SPE	"	"	4 2 0.000	0.00	100.0000	0.500	"
"	2-12	SP2	"	4 4 0.000	0.0000	-	0.400	204.3
"	SPN	"	"	4 4 0.000	0.00	100.0000	0.500	"
"	SPE	"	"	4 4 0.000	0.00	100.0000	0.500	"
"	2-22	SP2	"	4 6 0.000	0.0000	-	0.400	16.2
"	SPN	"	"	4 6 0.000	0.00	100.0000	0.500	303.5
"	SPE	"	"	4 6 0.000	0.00	100.0000	0.500	"
"	2-20	SP2	"	4 8 0.000	0.0000	-	0.400	470.5
"	SPN	"	"	4 8 0.000	0.00	100.0000	0.500	103.9
"	SPE	"	"	4 8 0.000	0.00	100.0000	0.500	"

Seismometer orientation is measured as degrees clockwise from geographic north

Table A2. (continued)

Seismogram	Date	Starting Time d h m s	Correction (sec)	Seismometer Orientation (deg)		Pendulum Period (sec)	Damping Ratio	Distance (km)	Azimuth (deg)	Back Azimuth (deg)
				Seismometer Sensitivity (volts m. sec)	Seismometer Sensitivity (deg)					
1243 2-14 SP2	24 SEP 1988	268 8 0 0.000	0.0000 NONE	0.000	0.000	100.0000	0.400	212.7	110.1	291.8
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
2-11 SP2	"	"	"	0.000	0.000	100.0000	0.400	151.8	119.1	300.2
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
2-21 SP2	"	"	"	0.000	0.000	100.0000	0.400	79.6	68.5	249.1
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
2-04 SP2	"	"	"	0.000	0.000	100.0000	0.400	148.3	215.3	34.5
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
1244 2-14 SP2	"	"	"	0.000	0.000	100.0000	0.400	217.5	110.2	292.0
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
1246 3-19 SP2	30 SEP 1988	274 6 0 0.000	0.0000	0.000	0.000	100.0000	0.400	443.9	103.9	287.6
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
3-16 SP2	"	"	"	0.000	0.000	100.0000	0.400	312.8	109.4	292.0
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
3-15 SP2	"	"	"	0.000	0.000	100.0000	0.400	270.9	110.8	292.9
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
3-10 SP2	"	"	"	0.000	0.000	100.0000	0.400	149.9	126.1	307.1
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
1290 3-19 SP2	"	"	"	0.000	0.000	100.0000	0.400	149.9	126.1	307.1
" SPN	"	"	"	0.000	0.000	100.0000	0.400	"	"	"
" SPE	"	"	"	0.000	0.000	100.0000	0.400	"	"	"

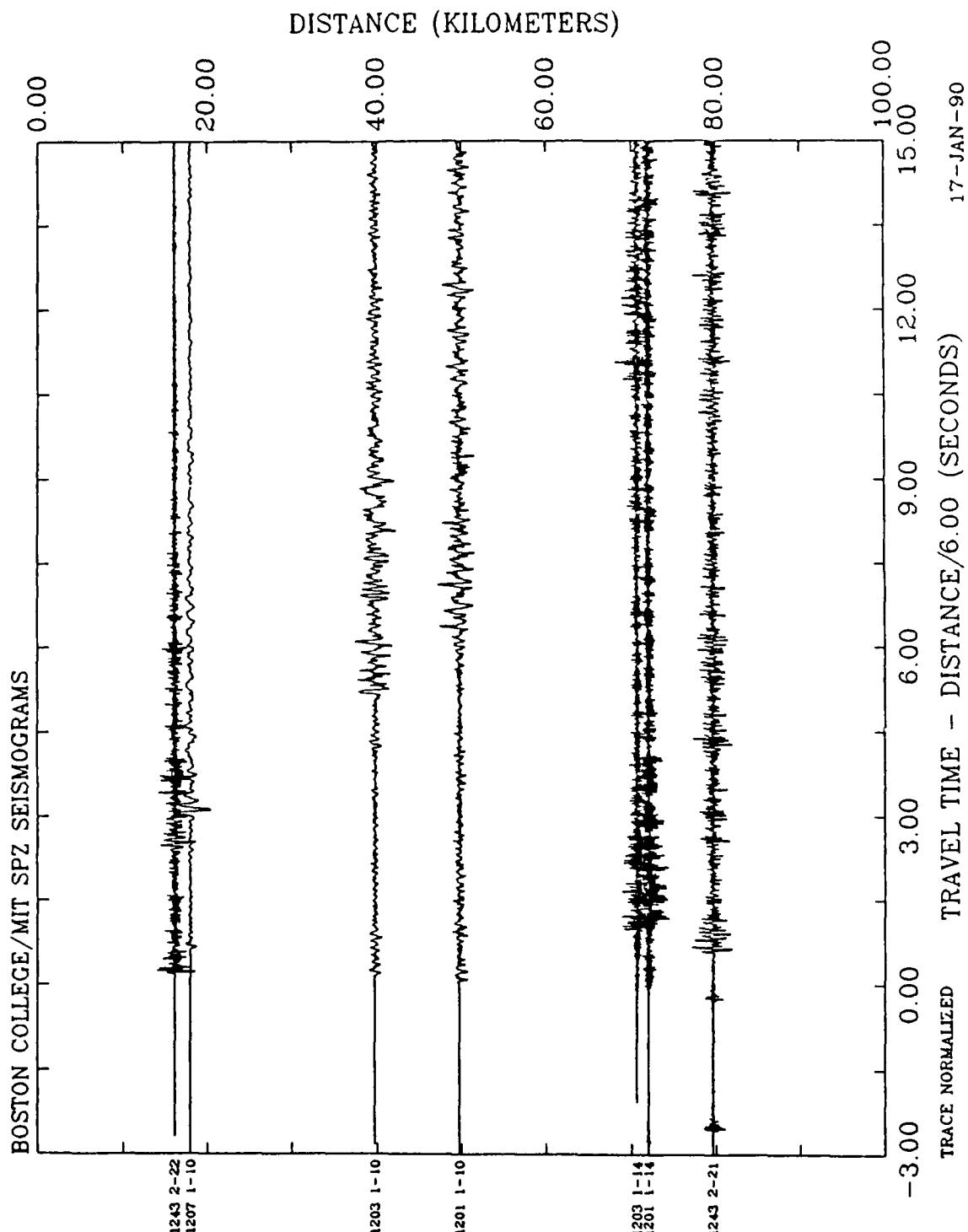
Seismometer orientation is measured as degrees clockwise from geographic north

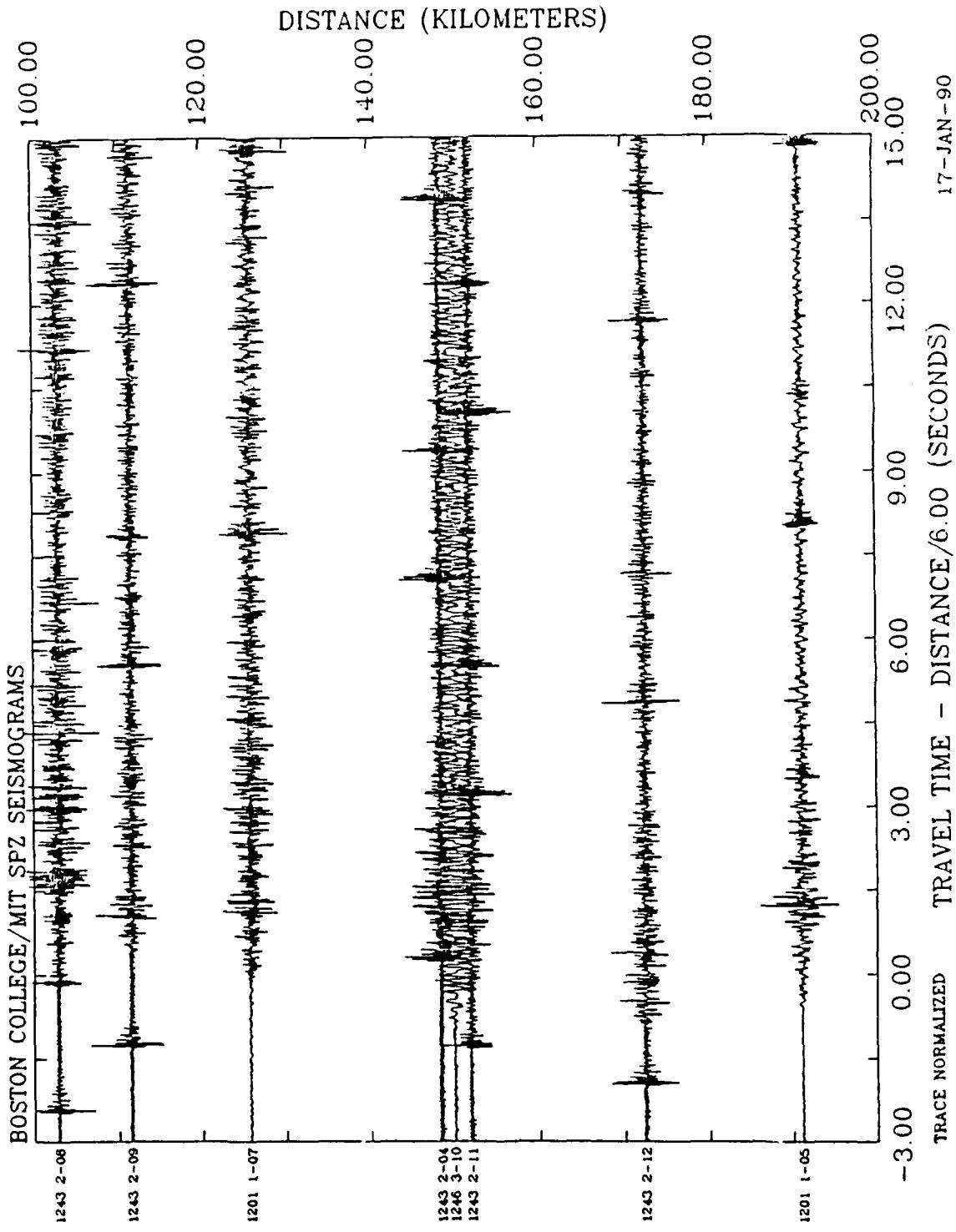
Table A3. MEQ-800 Arrival Times

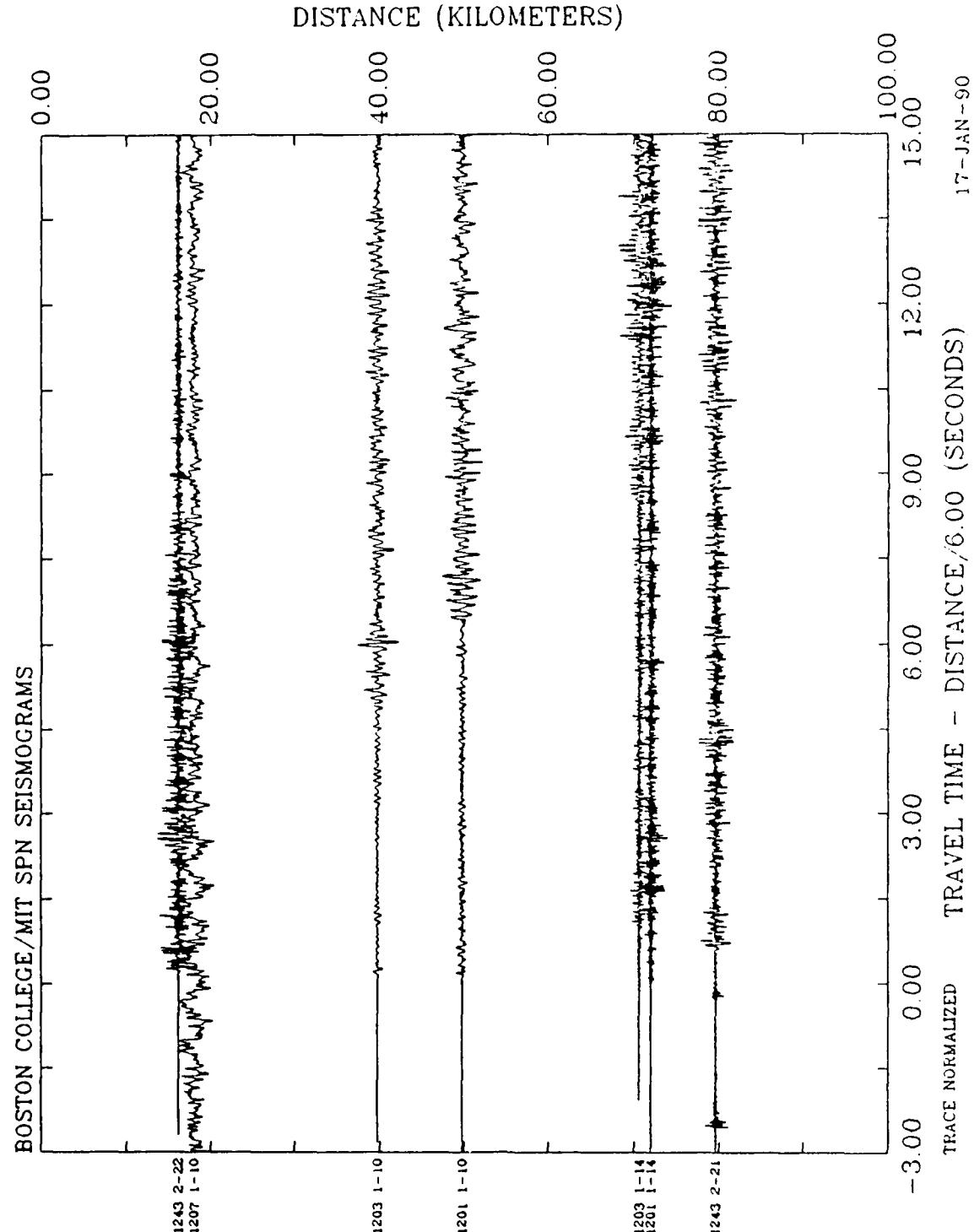
<u>Phase</u>	<u>Arrival Time</u>	<u>Notes</u>	<u>Phase</u>	<u>Arrival Time</u>	<u>Notes</u>
Station 1202		September 17, 1988			
eP	04:00:43.80	Very small	eP	04:02:30.13	
iP	04:04:19.83		eP	04:06:31.38	
eP	06:00:25.20		eP	06:02:35.08	
eP	06:04:46.60		eP	08:00:39.08	
eP	08:02:41.08		iP	08:04:07.08	
			iS	08:04:12.88	
Station 1204		September 17, 1988			
eP	04:00:43.1	Very small	eP	04:02:28.30	
eP	04:04:18.00		eP	04:06:29.50	
eP	04:08:12.50		eP	06:00:23.70	
eP	06:02:33.45		eP	06:04:45.38	
eP	08:00:38.10	Very small	eP	08:02:37.55	Very small
iP	08:04:05.08				
Station 1205		September 17, 1988			
eP	04:00:42.63?	Very small	eP	04:02:27.73	
eP	04:04:17.23		eP	04:06:28.75	
eP	04:08:12.53		eP	06:00:22.95	Very small
eP	06:02:33.09		eP	06:04:45.09	
eP	08:00:38.93	Very small	eP	08:02:39.10	
iP	08:04:04.35				
Station 1206		September 17, 1988			
eP	04:00:42.38?	Questionable	iP	04:04:16.88	
eP	04:06:28.10		eP	04:08:12.83	
eP	06:02:33.05		eP	06:04:45.08	
eP	08:00:37.65	Very small	eP	08:02:38.45	
iP	08:04:03.68				

Table A3. (continued)

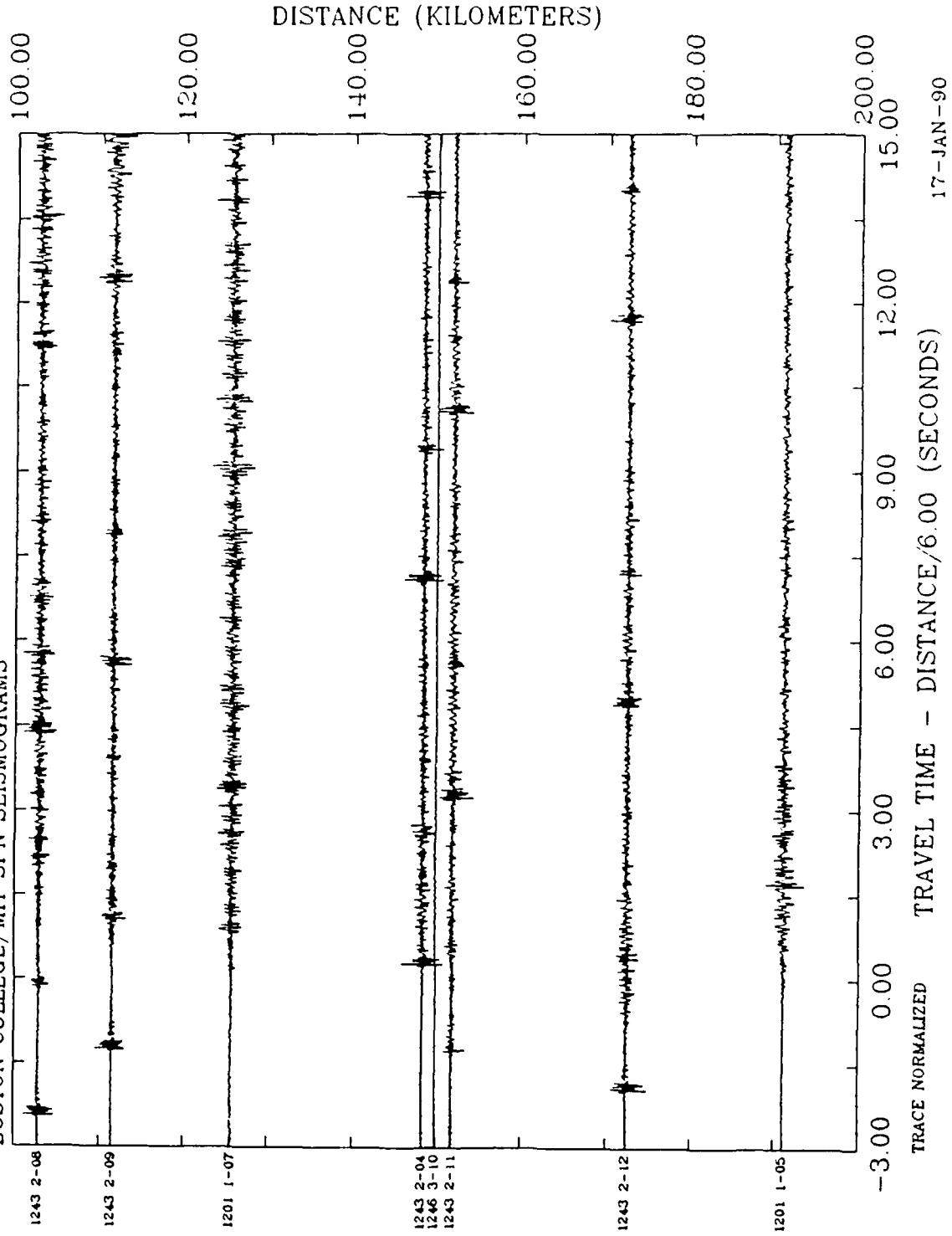
Station 1208	September 17, 1988			
eP 04:00:41.73		eP 04:02:27.20		
iP 04:04:15.85		eP 04:06:26.5		
iP 04:08:13.20		eP 06:00:22.03		
eP 06:02:26.13	Very noisy	eP 06:04:44.23?	Very small	
eP 08:00:37.08		eP 08:02:36.53		
iP 08:04:02.20				
Station 1242	September 24, 1988			
eP 04:00:16.96	Very small	eP 04:08:25.08?	Very small	
eP 06:00:15.65		eP 06:04:55.05?	Very small	
iP 08:04:13.38		eP 08:06:24.86?	Very noisy	
Station 1248	September 24, 1988			
eP 04:00:20.43?	Very small	eP 04:02:22.10?	Very small	
eP 04:04:30.60		iP 04:06:01.05		
eP 06:00:81.78		eP 06:04:34.08?	Very small	
iP 06:06:25.53		eP 08:00:36.35		
eP 08:02:27.80		iP 08:04:15.95		
eP 08:06:25.13				
Station 1249	September 24, 1988			
eP 04:00:21.40		eP 04:02:23.55		
eP 04:04:32.50		iP 04:06:02.30		
eP 06:00:19.60		eP 06:04:34.70?	Very small	
eP 06:06:26.58		eP 08:00:37.75?	Very small	
iP 08:02:29.10	Very small	iS 08:02:51.05?	Questionable	
eP 08:04:16.93		eP 08:06:25.15		
Station 1251	September 30, 1988			
eP 04:01:08.60		eP 04:06:39.38		
eP 06:04:43.63		eP 06:06:28.10?	Questionable	
Station 1254	September 30, 1988			
eP 04:01:13.08		eP 06:06:31.55		







BOSTON COLLEGE/MIT SPN SEISMOGRAMS



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